INTERNATIONAL
STANDARDIZED
PROFILE

ISO/IEC
ISP
xxxxx-Y

Final
Consolidated BIMA/VPF Profile, 4th Edition
5 June 2000

Information Technology - International Standardized Profile
FCG-nnn - Computer Graphics Metafile Interchange Format

FCGxx - Symbology and Annotation for Maps and Imagery (SAMI)

WORKING DRAFT

1 May 2000

Contents

Page

Foreword

An International Standardized Profile (ISO/IEC 12071) has been developed to provide profiles for the Computer Graphics Metafile (CGM ISO/IEC 8632:1992). At present, four profiles have been previously established as ISPs. These are: Basic Scientific and Technical Graphics (BST); Advanced Scientific and Technical Graphics (AST); Basic Presentation and Visualization (Model Profile); and, Advanced Presentation and Visualization (APV). The following is now being progressed:

Part Z: FCGxx
Symbology and Annotation for Maps and Imagery (SAMI)

This standard is normative.

This standard was developed within an Accredited Standards Committee of ANSI, the National Committee for Information Technology Standards (NCITS), in collaboration with JTC1/SC24, the committee with responsibility for Computer Graphics and Image Processing which developed the CGM standard.

Introduction

ISO/IEC ISP xxxxx is defined within the context of Functional Standardization in accordance with the principles specified in ISO/IEC TR 10000, “Framework and Taxonomy of International Standardized Profiles”.

This part of ISO/IEC ISP xxxxx was developed within the ANSI National Committee for Information Technology Standards (NCITS). Input to the process was also made by JTC1/SC24 who provided CGM and Basic Imagery Interchange Format (BIIF ISO/IEC 12087-5: 1997) expertise. The work was harmonized at a meeting in xxx xxx prior to PDISP ballot.

This part of ISO/IEC ISP xxxxx provides a profile suitable for BIIF image annotation and storage capability.

Information Technology - International Standardized Profile FCG-nnn - Computer Graphics Metafile Interchange Format -

FCGxx - Symbology and Annotation for Maps and Imagery (SAMI)

1 Scope

1.1 General

The Computer Graphics Metafile (CGM) provides a file format suitable for the storage and retrieval of picture information. The file format consists of a set of elements that can be used to describe pictures in a way that is compatible between systems of different architectures and devices of differing capabilities and design.

The SAMI profile, described in this part of ISO/EEC xxxxx, defines a subset of CGM elements, sets limits and generation and interpretation behavior according to the rules for profile definition defined in ISO/IEC 8632. The SAMI profile defines a version 4 CGM suitable for use in annotation of digital imagery such as that defined by BIIF ISO/IEC 12087-5: 1997.

1.2 Position within the taxonomy

SAMI is a single profile customized to digital imagery and map symbology and annotation defined within the taxonomy for CGM profiles.

The profile is as follows:

Taxonomy identifier:	Profile Name:
FCG- xx	Symbology and Annotation for Maps and Imagery (SAMI) e.g. graphical annotation of digital imagery products

1.3 User Requirements and Scenario

This part of ISO/IEC ISP xxxxx provides a profile, SAMI, which has limited capability and is suited to the basic requirements for annotation of digital imagery such as that formatted according to BIIF ISO/IEC 12087-5.

2 Normative References

The following documents contain provisions that, through reference in this text, constitute provisions of this International Standardized Profile. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this International Standardized Profile are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current recommendations.

ISO/IEC 8632:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information, Part 1: Functional Specification*

ISO/IEC 8632:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information, Part 2: Character Encoding*

ISO/IEC 8632:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information, Part 3: Binary Encoding*

ISO/IEC 8632:1992, *Information technology - Computer Graphics Metafile for the storage and transfer of picture description information, Part 4: Clear Text Encoding*

ISO/IEC 8632:1992/Amd. 1: *1994, Information Technology - Computer Graphics - Metafile for the storage and transfer of picture description information: - Part 1: Functional specification: Amendment I - Rules for profiles; - Part 2: Character Encoding: Amendment I - Rules for profiles; -*
Part 3: Binary Encoding: Amendment I - Rules for profiles; - Part 4: Clear text encoding: Amendment I - Rules for profiles

ISO/IEC 9973, *Information Technology - Computer Graphics and Image Processing - Procedures for Registration of Graphical Items*

3 Definitions

For the purposes of this part of ISO/IEC ISP xxxxx the definitions given in ISO/IEC 8632:1992 apply.

4 Abbreviations

For the purposes of this part of ISO/IEC ISP xxxxx the abbreviations given in ISO/IEC 8632:1992 apply.

5 Conformance

Conformance of metafiles to ISO/IEC 8632 is defined in terms of conformance to profiles. A metafile conforms to ISO/IEC 8632 if it conforms to a profile. A metafile may conform to ISO/IEC 8632 if it conforms to the SAMI profile defined in this part of ISO/IEC ISP xxxxx.

6 Specification of the SAMI Profile

6.1 CGM Element Defaults. The CGM implementation for SAMI shall assume the following CGM default values for input/output per Table 1. This is simply a statement of the "starting state" for creation of CGMs.

TABLE 1. CGM element defaults for input/output.

ELEMENT	DEFAULT VALUE	REQUIRED IN FILE CREATION
VDC TYPE:	16 BIT INTEGER	O
INTEGER PRECISION:	16 BIT INTEGER	O
INDEX PRECISION:	16 BIT INTEGER	O
COLOR PRECISION:	8 BIT INTEGER	O
TRANSPARENCY:	ON	O
LINE TYPE:	1 (SOLID)	R3
TEXT PRECISION:	STRING	O
CHARACTER EXPANSION FACTOR	1.0	O
CHARACTER SPACING:	0.0	O
CHARACTER ORIENTATION:	0, 1, 1, 0	R1
TEXT PATH:	RIGHT	O
TEXT ALIGNMENT:	NORMAL HORIZONTAL, NORMAL VERTICAL	O
INTERIOR STYLE:	HOLLOW (EMPTY)	R2
EDGE TYPE:	SOLID	R2
EDGE VISIBILITY:	OFF	R2

TABLE 1. CGM element defaults for input/output.

ELEMENT	DEFAULT VALUE	REQUIRED IN FILE CREATION
LINE COLOR:	DEVICE-DEPENDENT FOREGROUND COLOR	R3
EDGE COLOR:	DEVICE-DEPENDENT FOREGROUND COLOR	R2
FILL COLOR:	DEVICE-DEPENDENT FOREGROUND COLOR	R2
TEXT COLOR:	DEVICE-DEPENDENT FOREGROUND COLOR	R1
BACKGROUND COLOR:	NONE (THIS IS SAMI SPECIFIC)	O
COLOR VALUE EXTENT:	0, 0, 0 - 255, 255, 255	O
VDC INTEGER PRECISION:	16 BIT INTEGER	O
TEXT FONT INDEX:	1	R1
Colour Index Precision	8	O
Character Set Index	1	O
Auxiliary Colour	Device Dependent Auxiliary Colour	O
Line Width	2	R3
Character Height	21	R1
Edge Width	2	R2
Colour Selection Mode	Direct	R
Line Width Specification Mode	Absolute	R
Edge Width Specification Mode	Absolute	R

O-Optional, R- Always Required, R1- Required when text elements present, R2- Required when filled primitives present, R3- Required when line primitives present.

6.2 SAMI Supported Font Names For Output. The CGM implementation for SAMI shall limit the font name in the Font List element to the list shown in Table 2. SAMI Support Font Names for Output.

TABLE 2. SAMI Supported Font Names for Output.

FONT NAME
HERSHEY/CARTOGRAPHIC_ROMAN
HERSHEY/CARTOGRAPHIC_GREEK
HERSHEY/SIMPLEX_ROMAN
HERSHEY/SIMPLEX_GREEK
HERSHEY/SIMPLEX_SCRIPT
HERSHEY/COMPLEX_ROMAN
HERSHEY/COMPLEX_GREEK
HERSHEY/COMPLEX_SCRIPT
HERSHEY/COMPLEX_ITALIC
HERSHEY/COMPLEX_CYRILLIC
HERSHEY/DUPLEX_ROMAN
HERSHEY/TRIPLEX_ROMAN
HERSHEY/TRIPLEX_ITALIC
HERSHEY/GOTHIC_GERMAN
HERSHEY/GOTHIC_ENGLISH
HERSHEY/GOTHIC_ITALIAN
TIMES_ROMAN
TIMES_ITALIC
TIMES_BOLD
TIMES_BOLD_ITALIC
HELVETICA
HELVETICA_OBLIQUE
HELVETICA_BOLD
HELVETICA_BOLD_OBLIQUE
COURIER

TABLE 2. SAMI Supported Font Names for Output.

FONT NAME
COURIER_BOLD
COURIER_ITALIC
COURIER_BOLD_ITALIC

6.3 Completed Profile Pro Forma

This clause completes the Profile Pro Forma from ISO/IEC 8632 (Amendment 1) as required by the standard and is detailed in the following tables which are copied, including the table numbers, from that standard. The corrections that have been approved by ISO are included in the tables. The references in the pro forma are to ISO/IEC 8632 and to ISO/IEC 8632 Amendment 1.

6.3.1 Pro Forma Index

TABLE	FUNCTIONALITY	SUMMARY SPECIFICATION	PAGE
T.16.6	Index precision	Permitted	
T.16.7	Colour precision	Permitted	
T.16.8	Colour index precision	Permitted	
T.16.9	Maximum colour index	Permitted, Same as Model Profile	
T.16.10	Colour value extent	Permitted	
T.16.11	Metafile element list	Required	
T.16.12	Metafile defaults replacement	Prohibited	
T.16.13	Font list	Permitted	
T.16.14	Character set list	Permitted	
T.16.15	Character coding announcer	Prohibited	
T.16.16	Name precision	Permitted, Same as Model Profile	
T.16.17	Maximum VDC extent	Prohibited	
T.16.18	Segment priority extent	Prohibited	
T.16.19	Colour model	Permitted, Same as Model Profile	
T.16.20	Colour calibration	Prohibited	
T.16.21	Font properties	Prohibited	
T.16.22	Glyph mapping	Prohibited	
T.16.23	Symbol library list	Prohibited, Same as Model Profile	
T.16.24	Picture directory	Prohibited	
Table 17	Picture descriptor elements		32
T.17.1	Scaling mode	Permitted, Same as Model Profile	
T.17.2	Colour selection mode	Permitted, Same as Model Profile	
T.17.3	Line width specification mode	Required	
T.17.4	Marker size specification mode	Permitted, Same as Model Profile	
T.17.5	Edge width specification mode	Required	
T.17.6	VDC extent	Permitted, Same as Model Profile	
T.17.7	Background colour	Permitted	
T.17.8	Device viewport	Prohibited, Same as Model Profile	
T.17.9	Device viewport specification mode	Prohibited, Same as Model Profile	
T.17.10	Device viewport mapping	Prohibited, Same as Model Profile	
T.17.11	Line representation	Prohibited	
T.17.12	Marker representation	Prohibited	
T.17.13	Text representation	Prohibited	
T.17.14	Fill representation	Prohibited	
T.17.15	Edge representation	Prohibited	
T.17.16	Interior style specification mode	Prohibited	
T.17.17	Line and edge type definition	Prohibited	
T.17.18	Hatch style definition	Prohibited	
T.17.19	Geometric pattern definition	Prohibited	
T.17.20	Application structure directory	Prohibited	

TABLE	FUNCTIONALITY	SUMMARY SPECIFICATION	PAGE
T.19.23	Parabolic arc	Prohibited	
T.19.24	Non-uniform B-spline	Prohibited	
T.19.25	Non-uniform rational B-spline	Prohibited	
T.19.26	Polybezier	Prohibited	
T.19.27	Polysymbol	Prohibited, Same as Model Profile	
T.19.28	Bitonal tile	Prohibited	
T.19.29	Tile	Prohibited	
Table 20	Attribute elements		55
T.20.1	Line bundle index	Prohibited	
T.20.2	Line type	Permitted, Same as Model Profile	
T.20.3	Line width	Permitted	
T.20.4	Line colour	Permitted	
T.20.5	Marker bundle index	Prohibited	
T.20.6	Marker type	Prohibited	
T.20.7	Marker size	Prohibited	
T.20.8	Marker colour	Prohibited	
T.20.9	Text bundle index	Prohibited	
T.20.10	Text font index	Permitted, Same as Model Profile	
T.20.11	Text precision	Permitted	
T.20.12	Character expansion factor	Permitted	
T.20.13	Character spacing	Permitted	
T.20.14	Text colour	Permitted	
T.20.15	Character height	Permitted	
T.20.16	Character orientation	Permitted	
T.20.17	Text path	Permitted	
T.20.18	Text alignment	Permitted	
T.20.19	Character set index	Prohibited	
T.20.20	Alternate character set index	Prohibited	
T.20.21	Fill bundle index	Prohibited	
T.20.22	Interior style	Permitted, Same as Model Profile	
T.20.23	Fill colour	Permitted	
T.20.24	Hatch index	Permitted, Same as Model Profile	
T.20.25	Pattern index	Permitted, Same as Model Profile	
T.20.26	Edge bundle index	Prohibited	
T.20.27	Edge type	Permitted, Same as Model Profile	
T.20.28	Edge width	Permitted	
T.20.29	Edge colour	Permitted	
T.20.30	Edge visibility	Permitted, Same as Model Profile	
T.20.31	Fill reference point	Prohibited	
T.20.32	Pattern table	Permitted, Same as Model Profile	

Table 13 - Metafile rules

Remarks	Functionality	Specifications – PPF	Specifications - Model Profile
	T.13.1	Same as Model Profile **NO**	
	Encodings	Select 1 or more encodings: Binary **YES** Character **NO** Clear text **NO**	Select 1 or more encodings: Binary **YES** Character **YES** Clear text **YES**
	T.13.2	Same as Model Profile **NO**	
	Number of pictures	Number of pictures permitted in a metafile: minimum (> 0)? ***1.*** maximum (> 0 or no limit)? ***1.*** Other: ***None.***	Number of pictures permitted in a metafile: minimum (> 0)? *1.* maximum (> 0 or no limit)? *No limit.* Other: *None.*
	T.13.3	Same as Model Profile **NO**	
	Empty pictures	Are pictures allowed which have no graphical primitives? (yes/no) No. Other: None.	Are pictures allowed which have no graphical primitives? (yes/no) *Yes*. Other: *None.*
	T.13.4	Same as Model Profile **NO**	
	Metafile size	Any restrictions on metafile size? ***Yes.*** Other: ***1MB (1,048,576 bytes)***	Any restrictions on metafile size? *None.* Other: *None.*

Table 14 - Multi-element rules

Remarks	**Functionality**	**Specifications – PPF**	**Specifications - Model Profile**
	T.14.1 Colour References 7.5.4.1	Same as Model Profile **NO**	
		Select which rule applies to each metafile (choose 1): Either all colours or none shall be defined. **NO** All colours shall be defined. **YES** No colours shall be defined. **NO** Are colour indexes all allowed to be redefined within a picture or metafile? (yes/no) ***No.*** Any restrictions on the number of distinct colours used within a picture or metafile? (Monochrome metafiles shall use at most two distinct colours.) ***None.*** Are conformance categories defined? (yes/no) ***Yes.*** If yes, specify. ***Colour 8 bit RGB only.*** Other: None.	Select which rule applies to each metafile (choose 1): Either all colours or none shall be defined. **YES** All colours shall be defined. **NO** No colours shall be defined. **NO** Are colour indexes all allowed to be redefined within a picture or metafile? (yes/no) *No.* Any restrictions on the number of distinct colours used within a picture or metafile? (Monochrome metafiles shall use at most two distinct colours.) *None.* Are conformance categories defined? (yes/no) Yes. If yes, specify. *3 categories: monochrome, greyscale, and colour.* Other: *None.*
	T.14.2 Line primitives - geometric degeneracies References 7.5.4.3	Same as Model Profile **NO**	
		Geometric degeneracies are: Permitted **NO** Prohibited **YES** If permitted. graphical meaning of the degeneracy: Other:	Geometric degeneracies are: Permitted **YES** Prohibited **NO** If permitted. graphical meaning of the degeneracy: *A line primitive element, whose entire locus is a single point, denotes a graphical dot which is a filled circle, with diameter equal to the current line width and colour equal to the current line colour.* Other: *None.*

Table 14 - Multi-element rules (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.14.3	Same as Model Profile **NO**	
	Filled area primitives - geometric degeneracies References 7.5.4.4	Geometric degeneracies are: Permitted **NO** Prohibited **YES** If permitted. graphical meaning of the degeneracy: (see error processing T.24.7) Other:	Geometric degeneracies are: Permitted **YES** Prohibited **NO** If permitted. graphical meaning of the degeneracy: *A filled-area primitive element, whose entire locus is either a single point or a line has the following meaning:* *- If the locus of a filled-area primitive is a single point, then the meaning is a dot (which is a filled circle).* *- If the locus of a filled-area primitive is a non-degenerate line segment, then the meaning is a line.* *The dot or line is displayed with the fill colour if EDGE VISIBILITY is 'off ', unless INTERIOR STYLE is 'empty', in which case it is not rendered. If EDGE VISIBILITY is 'on', the interior treatment is the dot or line displayed in the fill colour, and then a dot or line superimposed with the current edge attributes.* Other: *None.*
Some non-GeoSym4 customers require text. Text will not be used in GeoSym4	T.14.4	Same as Model Profile **YES**	
	Graphical text strings References 7.5.4.5	Minimum string length (bytes): 0 Maximum string length (bytes): 254 Any restrictions on the use of ISO/IEC 2022 switching controls? Other:	Minimum string length (bytes): *0.* Maximum string length (bytes): *254.* Any restrictions on the use of ISO/IEC 2022 switching controls? *Any character set used in the metafile which is accessed by ISO/IEC 2022 switching techniques shall be in the Character Set List (defined in this profile). C0 control codes (except NUL and ISO/IEC 2022 switching) are prohibited.* Other: *None.*

Table 14 - Multi-element rules (continued)

Remarks	**Functionality**	**Specifications – PPF**	**Specifications - Model Profile**
	T.14.5 Non-graphical text strings References 7.5.4.6	Same as Model Profile **NO**	
		Maximum string length (bytes): for type SF: ***Begin Picture, Begin Metafile and Metafile Description: 254 bytes*** ***font list: 1024 bytes*** for type SF within type D: N/A Format effectors and ESC: Permitted **NO** Prohibited **YES** Other C0 control codes (except NUL and ISO/IEC 2022 switching) are prohibited. Any limits on the set of acceptable character sets? ***Yes, ISO646 character set [space (32) through tilde (126)]*** Any restrictions on the use of ISO/IEC 2022 switching controls? ***Yes, not permitted.*** Other: ***None.***	Maximum string length (bytes): for type SF: *254.* for type SF within type D: *1024.* Format effectors and ESC: Permitted **YES** Prohibited **NO** Other C0 control codes (except NUL and ISO/IEC 2022 switching) are prohibited. Any limits on the set of acceptable character sets? *The permitted character sets are ISO 8859-1 LHS No. 1 and ISO 8859-1 RHS No. 1.* Any restrictions on the use of ISO/IEC 2022 switching controls? *Any character set used in the metafile which is accessed by ISO/IEC 2022 switching techniques shall be in the character set list (defined in this profile).* Other: *None.*
Text will not be used in GeoSym4. However, some non-GeoSym4 customers require text.	T.14.6 Data record strings References 7.5.4.7	Same as Model Profile **YES**	
		Maximum string length (bytes) or state (no limit): SDR-coding techniques must be used (see annex C.2.2). Other:	Maximum string length (bytes) or state (no limit): *32767.* SDR-coding techniques must be used (see annex C.2.2). Other: *None.*

Table 15 - Delimiter elements

Remarks	**Element**	**Specifications – PPF**	**Specifications - Model Profile**
VPF requires this mod since this is how the name of the file is tracked.	T.15.1 BEGIN METAFILE END METAFILE [v1] References 5.2.1 5.2.2 7.5.4.6 T.14.5	Same as Model Profile **YES** Element is: Required **YES** The *metafile identifier* shall follow the rules for non-graphical text. clause 7.5.4.6 and T.14.5. Other:	 Element is: Required **YES** The *metafile identifier* shall follow the rules for non-graphical text. clause 7.5.4.6 and T.14.5. Other: *None.*
	T.15.2 BEGIN PICTURE BEGIN PICTURE BODY END PICTURE [v1] References 5.2.3 5.2.4 5.2.5 7.5.4.6 T.14.5	Same as Model Profile **NO** Element is: Required **YES** Permitted **NO** Prohibited **NO** The picture identifier shall follow the rules for non-graphical text. clause 7.5.4.6 and T.14.5 Number of occurrences of these elements allowed in the metafile: ***1.*** Other: ***None.***	 Element is: Required **NO** Permitted **YES** Prohibited **NO** The picture identifier shall follow the rules for non-graphical text. clause 7.5.4.6 and T.14.5 Number of occurrences of these elements allowed in the metafile: *No limit.* Other: *None.*

Table 15 - Delimiter elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.15.3	Same as Model Profile **NO**	
	BEGIN SEGMENT END SEGMENT [v2] References 5.2.6 5.2.7	Element is: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneously defined segments (both global and local) at any point in the metafile: . Any limits on the number of elements or restrictions on which elements compose a segment? Is there any meaning given to the *segment identifier* parameter? (yes/no) If yes, specify. (Meaning shall have no graphical effect.) Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneously defined segments (both global and local) at any point in the metafile: *1024.* . Any limits on the number of elements or restrictions on which elements compose a segment? *None.* Is there any meaning given to the *segment identifier* parameter? (yes/no) *No.* If yes, specify. (Meaning shall have no graphical effect.) Other: *When global segments are specified in the Metafile Descriptor, all global segment definitions shall follow all other Metafile Descriptor elements. When segments are specified in the Picture Descriptor, all such segment definitions shall follow all other Picture Descriptor elements.*
	T.15.4	Same as Model Profile **NO**	
	BEGIN FIGURE END FIGURE [v2] References 5.2.8 5.2.9	Element is: Required **NO** Permitted **NO** Prohibited **YES** Limits on the number of elements or restrictions on which elements comprise a figure definition: Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Limits on the number of elements or restrictions on which elements comprise a figure definition: *Maximum number of elements = 128. No restrictions on which eligible elements may be included.* Other: *None.*

Table 15 - Delimiter elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.15.5 BEGIN PROTECTION REGION END PROTECTION REGION [v3] References 5.2.10 5.2.11	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneously defined protection regions: Maximum number of elements within each protection region: Is there any meaning to the *region index* parameter other than as a unique identifier for each protection region? (yes/no) If yes, specify. (Meaning shall have no graphical effect.) Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneously defined protection regions: *32.* Maximum number of elements within each protection region: *128.* Is there any meaning to the *region index* parameter other than as a unique identifier for each protection region? (yes/no) *No.* If yes, specify. (Meaning shall have no graphical effect.) Other: *None.*
	T.15.6 BEGIN COMPOUND LINE END COMPOUND LINE [v3] References 5.2.12 5.2.13	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Limits on the number of elements and identity of elements comprising a path definition: Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Limits on the number of elements and identity of elements comprising a path definition: *Maximum number of elements is 128. No restrictions on which eligible elements may be included.* Other: *None.*

Table 15 - Delimiter elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.15.7	Same as Model Profile **NO**	
	BEGIN COMPOUND TEXT PATH END COMPOUND TEXT PATH [v3] References 5.2.14 5.2.15	Element is: Required **NO** Permitted **NO** Prohibited **YES** Limits on the number and identity of elements comprising a path definition: Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Limits on the number and identity of elements comprising a path definition: *Maximum number of elements is 128. No restrictions on which eligible elements may be included.* Other: *None.*
	T.15.8	Same as Model Profile **NO**	
	BEGIN TILE ARRAY END TILE ARRAY [v3] References 5.2.16 5.2.17	Element is: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of tiles in path direction: Maximum number of tiles in line direction: Maximum number of cells/tile in path direction: Maximum number of cells/tile in line direction: Limits on pel path: Limits on line progression: Limits on image offset: Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of tiles in path direction: *16.* Maximum number of tiles in line direction: *16.* Maximum number of cells/tile in path direction: *1024.* Maximum number of cells/tile in line direction: *1024.* Limits on pel path: *None.* Limits on line progression: *None.* Limits on image offset: *None.* Other: *None.*
	T.15.9	Same as Model Profile **NO**	
	BEGIN APPLICATION STRUCTURE BEGIN APPLICATION STRUCTURE BODY END APPLICATION STRUCTURE [V4] References: 5.2.18 5.2.19 5.2.20	Element is: Required **NO** Permitted **YES** Prohibited **NO** Limits on the maximum number of defined structures within a picture: Unlimited. See section 3 for definition of allowed structures Limits on the number and identity of elements comprising a structure: None Is there any meaning to the application structure identifier parameter? No If yes, specify. Is the inheritance flag parameter restricted: No Other: *Yes. STATE LIST only*	Element is: Required **NO** Permitted **YES** Prohibited **NO** Limits on the number of defined structures within a picture: Limits on the number and identity of elements comprising a structure: To the application structure identifier parameter, state the meaning: Assigned beyond being a unique identifier for the application structure. Is the inheritance flag parameter restricted: *No.* Other: *None.*

Table 16 - Metafile descriptor elements

Remarks	Element	Specifications – PPF	Specifications - Model Profile
Use of Version 4 CGM elements will be required for line and edge styles.	T.16.1 METAFILE VERSION [v1] References 5.3.1	Same as Model Profile **YES** Element is: Required **YES** Metafile versions permitted by this profile: *1,2,3,4* Other: *None*	Element is: Required **YES** Metafile versions permitted by this profile: *1, 2, 3,4* Other: *None.*
	T.16.2 METAFILE DESCRIPTION [v1] References 5.3.2 7.5.2.1 7.5.2.2 7.5.4.6 T.14.1 T.14.5	Same as Model Profile **NO** Element is: Required **YES** The *description* parameter shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. The substring within the SF parameter shall be of the form: "keyword:item", where the double quotes are part of the substring. Maximum number of occurrences of this element? ***1.*** Profile identification (use keyword, "ProfileId:"): ***"ProfileId:SAMI"*** Profile edition (use keyword, "ProfileEd:"): ***"ProfileEd:2; 1 Aug 1999".*** If this profile edition is not given, then the edition defaults to 1.	Element is: Required **YES** The *description* parameter shall follow the rules for non-graphical text, clause 7.5.4.6 and T.14.5. The substring within the SF parameter shall be of the form: "keyword:item", where the double quotes are part of the substring. Maximum number of occurrences of this element? *Unlimited.* Profile identification (use keyword, "Profiled:"): ***"ProfileId:Model-Profile".*** Profile edition (use keyword, "Profiled:"): ***"ProfileEd:I".*** If this profile edition is not given, then the edition defaults to 1.

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.16.2 continued METAFILE DESCRIPTION	Additional information content: Metafile colour conformance class, source, and date items shall be encoded as substrings of the *description* parameter using the keywords: "ColourClass:", "Source:", and "Date:", respectively. ColourClass: Required **NO** Permitted **YES** Content: Source: Required **NO** Permitted **YES** Content: Date: Required **NO** Permitted **YES** Content shall be date of metafile generation. The form and content shall be YYYYMMDD where: YYYY = year (1997) MM = month (01 - 12) DD = day (01 - 31) Other: *None.*	Additional information content: Metafile colour conformance class, source, and date items shall be encoded as substrings of the *description* parameter using the keywords: "ColourClass:", "Source:", and "Date:", respectively. ColourClass: Required **YES** Permitted **NO** Content: *(One of: colour, greyscale, or monochrome).* Source: Required **YES** Permitted **NO** Content: *(Vendor, product, and version).* Date: Required **YES** Permitted **NO** Content shall be date of metafile generation. *The form and content shall be in accordance with ISO 8601:1988.* Other: *None.*
	T.16.3 VDC TYPE [v1] Reference: 5.3.3	Same as Model Profile **NO** Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? ***Yes, integer only.*** Other: *None.*	[redacted] Element is: Required **YES** Permitted **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.16.4 INTEGER PRECISION [v1] References: 5.3.4	Same as Model Profile **NO** Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: ***16 bit only. See part 3 of ISO/IEC 8632 functional specification; and Binary Encoding, Table entry T.13.1.***	[redacted] Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.16.5 REAL PRECISION [v1] References: 5.3.5	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: None	[redacted] Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
	T.16.6 INDEX PRECISION [v1] Reference: 5.3.6	Same as Model Profile **NO** Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: ***16 bit only. Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See section 6.1 Table 1.*** See Part 3 of ISO/IEC 8632 functional specification; and Binary Encoding, Table entry T.13.3.	[redacted] Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
	T.16.7 COLOUR PRECISION [v1] References: 5.3.7	Same as Model Profile **NO** Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: ***8 bit only. Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See section 6.1 Table 1.*** See Part 3 of ISO/IEC 8632 functional specification; and Binary Encoding, Table entry T13.4.	[redacted] Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.16.8 COLOUR INDEX PRECISION [v1] References: 5.3.8	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.* See Part 3 of ISO/IEC 8632 functional specification; and Binary Encoding, Table entry, T.13.5.	Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
	T.16.9 MAXIMUM COLOUR INDEX [v1] Reference: 5.3.9	Same as Model Profile **YES**	
		Element is: Required **NO** Permitted **YES** Prohibited **NO** Is this element required to be a least upper bound? (yes/no) ***No*** Any restrictions on the parameter values? ***0-255*** Other: ***None***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is this element required to be a least upper bound? (yes/no) *No.* Any restrictions on the parameter values? *0-1 for monochrome metafiles.* *0-63 for greyscale metafiles.* *0-255 for colour metafiles.* Other: *None.*
	T.16.10 COLOUR VALUE EXTENT [v1] References: 5.3.10	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **YES** Any restrictions on the parameter values? ***0, 0, 0, 255, 255, 255.*** Other: ***8 bit only.***	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter values? *None.* Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
GeoSym4 will provide an exhaustive list in each cgm of elements that might be used.	T.16.11 METAFILE ELEMENT LIST [v1] References 5.3.11	Same as Model Profile **NO** Element is: Required **YES** Other: ***Version 4 set, Begin Application Structure, Begin Application Structure Body, End Application Structure, and Application Structure Attribute.*** 0xFFFF, 0x0006 ; 0x0000, 0x0015 ; 0x0000, 0x0016 ; 0x0000, 0x0017 ; and 0x0009, 0x0001.	[redacted] Element is: Required **YES** Other: *None.*
	T.16.12 METAFILE DEFAULTS REPLACEMENT [v1] References 5.3.12	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Is each occurrence of the MDR restricted to defining just one default? (yes/no) Additional restrictions may be specified in parts 2, 3, and 4 of ISO/IEC 8632. ***NOTE - Profile specifications regarding use of MDR shall be consistent with other profile specifications. For example, if a profile restricts metafiles to a single picture, then it makes little sense for the profile to require the MDR element in metafiles.*** Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Is each occurrence of the MDR restricted to defining just one default? (yes/no) *No.* Additional restrictions may be specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.16.13	Same as Model Profile **NO**	
	FONT LIST [v1] References: 5.3.13 annex H	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element is required for all metafiles containing graphical text. Maximum number of fonts in the list: ***32.*** All font indexes referenced in the metafile, including the default (nominally index 1) shall be defined in the FONT LIST element, with font name construction consistent with the rules of ISO/IEC 9541. List of permitted fonts: ***See Font List, clause 6.2.*** Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element is required for all metafiles containing graphical text. Maximum number of fonts in the list: *64.* All font indexes referenced in the metafile, including the default (nominally index 1) shall be defined in the FONT LIST element, with font name construction consistent with the rules of ISO/IEC 9541. List of permitted fonts: *Times-Roman* *Helvetica-BoldOblique* *Times-Bold* *Courier* *Times-Italic* *Courier-Bold* *Times-BoldItalic* *Courier-Oblique* *Helvetica* *Courier-BoldOblique* *Helvetica-Bold* *Symbol* *Helvetica-Oblique* ***NOTE - These font names are trademarked and some are proprietary and copyrighted. Times and Helvetica are registered trademarks of Allied Corporation, the owner of the copyright on the fonts of those names. Metric equivalents of the named fonts may be substituted by interpreters. Times is a serif font. Helvetica is a sans-serif font. Courier is a mono spaced, serif font. The association of character code to glyph which shall be used for each of the fonts and the metrics of the named fonts are contained in annex H.*** Other: *None.*
	T.16.14	Same as Model Profile **NO**	

	CHARACTER SET LIST [v1] References 5.3.14	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element is required for all metafiles containing graphical text. Maximum limit for the number of character sets in the character set list: ***1.*** Character sets shall be selected from the ISO Registry of Character Sets. This list may be extended by adding profile-defined character sets. List character sets: ***ISO646 Character Set.*** ***Note - Found in Chapter 6 of ISO 8632.*** If any of these character sets is of type "complete code", specify the content of the complete code and its associated sequence tail: ***N/A*** Other: *None.*	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element is required for all metafiles containing graphical text. Maximum limit for the number of character sets in the character set list: *4.* Character sets shall be selected from the ISO Registry of Character Sets. This list may be extended by adding profile-defined character sets. List character sets: *"94-character G-set", 4/2 (ISO 8859-1 LH);* *"96-character G-set", 4/1 (ISO 8859-1 RH);* *"94-character G-set", 2/10 3/10 (Symbol LH);* *"94-character G-set", 2/6 3/10 (Symbol RH);* If any of these character sets is of type "complete code", specify the content of the complete code and its associated sequence tail: *Not applicable.* Other: *None.*
	T.16.15 CHARACTER CODING ANNOUNCER [v1] References 5.3.15	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *Values shall be **basic 7-bit** and **basic 8-bit**.* Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.16.16 NAME PRECISION [v2] References: 5.3.16	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** The parameter value of this element is coding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element is: Required **NO** Permitted **YES** The parameter value of this element is encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:
	T.16.17 MAXIMUM VDC EXTENT [v2] References: 5.3.17	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *None.* Other: *None.*
	T.16.18 SEGMENT PRIORITY EXTENT [v2] References: 5.3.18	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? Other: *None.*
	T.16.19 COLOUR MODEL [v3] References: 5.3.19	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? ***None*** Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *None.* Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.16.20 COLOUR CALIBRATION [v3] References 5.3.20	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Calibration selection values permitted in accordance with the permitted model(s): If CYMK is permitted, minimum number of grid locations: Any restrictions on the number of colour lookup table entries, n? Any restrictions on the number of grid locations, m? If CYMK is permitted, algorithms for interpolation between grid locations? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Calibration selection values permitted in accordance with the permitted model(s): *Values 1...6, 9.* If CYMK is permitted, minimum number of grid locations: *1.* Any restrictions on the number of colour lookup table entries, n? *None.* Any restrictions on the number of grid locations, m? *None.* If CYMK is permitted, algorithms for interpolation between grid locations? *None.* Other: *None.*
	T.16.21 FONT PROPERTIES [v3] References 5.3.21	Same as Model Profile **NO**	
		Element is : Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *All defined index and enumerated values of all parameters shall be permitted.* Other: *None.*

Table 16 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.16.22 GLYPH MAPPING [v3] References 5.3.22	Same as Model Profile **NO** Required **NO** Permitted **NO** Prohibited **YES** Subset of AFH registered glyphs which may be referenced: Maximum number of glyphs which may be defined: Other:	 Required **NO** Permitted **YES** Prohibited **NO** Subset of AFH registered glyphs which may be referenced: *None.* Maximum number of glyphs which may be defined: *8192.* Other: *None.*
	T.16.23 SYMBOL LIBRARY LIST [v3] References 5.3.23	Same as Model Profile **YES** Required **NO** Permitted **NO** Prohibited **YES** Libraries which may be accessed and their encoding rules: Maximum number of libraries which may be accessed: Other:	 Required **NO** Permitted **NO** Prohibited **YES** Libraries which may be accessed and their encoding rules: Maximum number of libraries which may be accessed: Other: ***NOTE - There are currently no registered symbol libraries.***
	T.16.24 PICTURE DIRECTORY [V4] References: 5.3.24	Same as Model Profile **NO** Required **NO** Permitted **NO** Prohibited **YES**	 Required **NO** Permitted **YES** Prohibited **NO** Follow rules for non-graphical text strings for *picture identifier*, clause 7.5.4.6

Table 17 - Picture descriptor elements

Remarks (also see above)	Element	Specifications - PPF	Specifications - Model Profile
	T.17.1 SCALING MODE [v1] References: 5.4.1	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? The value for Scaling Mode shall be a positive value. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *If SCALING MODE is metric then the 'metric scale factor' shall be positive.* Other: *None.*
	T.17.2 COLOUR SELECTION MODE [v1] [v2] References: 5.4.2	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **YES** Any restrictions on the parameter values? *None.* Other:	Element: Required **NO** Permitted **YES** Any restrictions on the parameter values? *None.* Other: *None.*
	T.17.3 LINE WIDTH SPECIFICATION MODE [v1] [v2] References: 5.4.3	Same as Model Profile **NO**	
		Element: Required **YES** Permitted **NO** Any restrictions on the parameter values? ***Yes, always 0X0000 for "absolute mode".*** Other:	Element: Required **NO** Permitted **YES** Any restrictions on the parameter values? *None.* Other: *None.*

Table 17 - Picture descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.17.4 MARKER SIZE SPECIFICATION MODE [v1] [v2] References: 5.4.4	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter values? *None.* Other: *None.*
	T.17.5 EDGE WIDTH SPECIFICATION MODE [v1] [v2] References: 5.4.5	Same as Model Profile **NO**	
		Element: Required **YES** Permitted **NO** Any restrictions on the parameter values? ***Yes, always 0X0000*** for "absolute mode". Other:	Element: Required **NO** Permitted **YES** Any restrictions on the parameter values? *None.* Other: *None.*
	T.17.6 VDC EXTENT [v1] References: 5.4.6	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **YES** Limits on the sense and orientation of the VDC space: Is zero-area VDC extent permitted? (yes/no). No If yes, specify its meaning. Other:	Element: Required **NO** Permitted **YES** Limits on the sense and orientation of the VDC space: *None.* Is zero-area VDC extent permitted? (yes/no) *No.* If yes, specify its meaning. Other: *None.*

Table 17 - Picture descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.17.7 BACKGROUND COLOUR [v1] References: 5.4.7 7.5.4.1 T.14.1	Same as Model Profile **NO** Element: Required **NO** Permitted **YES** The *colour value* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other: ***If background color is not included, the default is transparent. If background color is included, it should be used but the VDC shall limit the extent.***	[redacted] Element is: Required **NO** Permitted **YES** The *colour value* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other: *None.*
	T.17.8 DEVICE VIEWPORT [v2] References: 5.4.8	Same as Model Profile **YES** Element: Required **NO** Permitted **NO** Prohibited **YES** Interaction of this element with environmental presentation directives: Meaning of this element if the specified value is inconsistent with the presentation device: Other:	[redacted] Element: Required **NO** Permitted **NO** Prohibited **YES** Interaction of this element with environmental presentation directives: Meaning of this element if the specified value is inconsistent with the presentation device: Other: ***NOTE - This element is prohibited due to its device dependence.***
	T.17.9 DEVICE VIEWPORT SPECIFICATION MODE [v2] References: 5.4.9	Same as Model Profile **YES** Element: Required **NO** Permitted **NO** Prohibited **YES** Set of legal values: Other:	[redacted] Element: Required **NO** Permitted **NO** Prohibited **YES** Set of legal values: Other: ***NOTE - This element is prohibited due to its device dependence.***

Table 17 - Picture descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.17.10 DEVICE VIEWPORT MAPPING [v2] References: 5.4.10	Same as Model Profile **YES** Element: Required **NO** Permitted **NO** Prohibited **YES** Set of legal values: Other:	[redacted] Element is: Required **NO** Permitted **NO** Prohibited **YES** Set of legal values: Other: ***NOTE - This element is prohibited due to its device dependence.***
	T.17.11 LINE REPRESENTATION [v2] References: 5.4.11 7.5.2.6 7.5.4.2 T.20.1	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneous bundle definitions: Other:	[redacted] Element: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneous bundle definitions: *20.* Other: *None.*
	T.17.12 MARKER REPRESENTATION [v2] References: 5.4.12 7.5.2.6 7.5.4.2 T.20.5	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneous bundle definitions: Other:	[redacted] Element: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneous bundle definitions: *20.* Other: *None.*

Table 17 - Picture descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.17.13 TEXT REPRESENTATION [v2] References: 5.4.13 7.5.2.6 7.5.4.2 T.20.9	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneous bundle definitions: Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** :Maximum number of simultaneous bundle definitions: *20.* Other: *None.*
	T.17.14 FILL REPRESENTATION [v2] References: 5.4.14 7.5.2.6 7.5.4.2 T.20.21	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneous bundle definitions: Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneous bundle definitions: *20.* Other: *None.*
	T.17.15 EDGE REPRESENTATION [v2] References: 5.4.15 7.5.2.6 7.5.4.2 T.20.26	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneous bundle definitions: Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneous bundle definitions: *20.* Other: *None.*

Table 17 - Picture descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.17.16 INTERIOR STYLE SPECIFICATION MODE [v3] References: 5.4.16	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** Any restriction on the parameter value? Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restriction on the parameter value? *None.* Other: *None.*
	T.17.17 LINE AND EDGE TYPE DEFINITION [v3] References: 5.4.17	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** Any limits on the number of definitions? Any limits on the number of elements in a given definition? Any restrictions on the dash cycle repeat length? Any restrictions on complexity of definition to prevent degeneracies? Other:	[redacted] Element: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the number of definitions? *Maximum of 32 line types shall be specified simultaneously.* Any limits on the number of elements in a given definition? *Number of values in the dash gap list shall not exceed 8.* Any restrictions on the dash cycle repeat length? *None.* Any restrictions on complexity of definition to prevent degeneracies? *None.* Other: *None.*

Table 17 - Picture descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.17.18 HATCH STYLE DEFINITION [v3] References: 5.4.18	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Limit on the number of hatch styles? Limit on the number of gaps in a given definition? Any limits on duty cycle length? Any restrictions on complexity of definition to prevent degeneracies? Any restrictions on the style indicator: Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Limit on the number of hatch styles? *Maximum of 32 hatch styles shall be specified simultaneously.* Limit on the number of gaps in a given definition? *Number of entries in the gap width list shall not exceed 8.* Any limits on duty cycle length? *None.* Any restrictions on complexity of definition to prevent degeneracies? *None.* Any restrictions on the style indicator: *None.* Other: *None.*
	T.17.19 GEOMETRIC PATTERN DEFINITION [v3] References: 5.4.19	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Any limits on the number of geometric patterns defined? ***NOTE - The number of geometric patterns cannot exceed the number of segments.*** Any limits on the classes of primitives? Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the number of geometric patterns defined? *The maximum number of geometric patterns is 64.* . Any limits on the classes of primitives? *None.* Other: *None.*
	T.17.20 APPLICATION STRUCTURE DIRECTORY [V4] Reference: 5.3.20	Same as Model Profile **NO**	
		Required **NO** Permitted **NO** Prohibited **YES** Follow rules for non-graphical text strings for application structure identifier parameter, clause 7.5.4.6 Other:	Required **NO** Permitted **YES** Prohibited **NO** Follow rules for non-graphical text strings for application structure identifier parameter, clause 7.5.4.6 Other: None.

Table 18 - Control Elements

Remarks (see above)	**Element**	**Specifications - PPF**	**Specifications - Model Profile**
	T.18.1 VDC INTEGER PRECISION [v1] References: 5.5.1	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **YES** The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: ***16 bit only. Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
	T.18.2 VDC REAL PRECISION [v1] References: 5.5.2	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** ***NOTE - Prohibited per Part 3 Binary Encoding, Control Element, Table entry T.14.2.*** The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other:	Element: Required **NO** Permitted **YES** The parameter values of this element are encoding dependent. Restrictions are specified in parts 2, 3, and 4 of ISO/IEC 8632. Other: *None.*
	T.18.3 AUXILIARY COLOUR [v1] References: 5.5.3 7.5.4.1 T.14.1 D.4.4.1	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **YES** Prohibited **NO** The auxiliary colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The auxiliary colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Other: *None.*

Table 18 - Control Elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.18.4 TRANSPARENCY [v1] References: 5.4.4 T.14.1	Same as Model Profile **YES** Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.18.5 CLIP RECTANGLE [v1] References: 5.5.5 D.4.4.2	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** Meaning of boundary cases for: zero-area: area greater than VDC extent: additional cases? ***NOTE - Because objects inside and on the boundary are drawn, then zero area does not have the sometimes claimed effect of hiding subsequent primitives - there will be a visible effect, a dot or a line, if the object intersects the boundary of the degenerate area.*** Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Meaning of boundary cases for: zero-area: *Prohibited.* area greater than VDC extent: *Clipping shall be done to the intersection of CLIP RECTANGLE and VDC EXTENT.* additional cases? *None.* Other: *None.*
	T.18.6 CLIP INDICATOR [v1] References: 5.5.6	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.18.7 LINE CLIPPING MODE [v2] References: 5.5.7 D.4.4.3	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*

Table 18 - Control Elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.18.8 MARKER CLIPPING MODE [v2] References: 5.5.8 D.4.4.3	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.18.9 EDGE CLIPPING MODE [v2] References: 5.5.9 D.4.4.3	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.18.10 NEW REGION [v2] References: 5.5.10	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** This element shall be permitted only if **BEGIN FIGURE** is permitted. Any restrictions on the number of occurrences? Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** This element shall be permitted only if **BEGIN FIGURE** is permitted. Any restrictions on the number of occurrences? *None.* Other: *None.*
	T.18.11 SAVE PRIMITIVE CONTEXT [v2] References: 5.5.11	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of simultaneously saved contexts: Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of simultaneously saved contexts: *1024.* Other: *None.*

Table 18 - Control Elements (continued)

Remarks	Functionality	Specifications - PPF	Specifications - Model Profile
	T.18.12 RESTORE PRIMITIVE CONTEXT [v2] References: 5.5.12	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** This element is permitted only if *SAVE PRIMITIVE CONTEXT* is permitted. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element is permitted only if *SAVE PRIMITIVE CONTEXT* is permitted. Other: *None.*
	T.18.13 PROTECTION REGION INDICATOR [v3] References: 5.5.13	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** This element shall be permitted only if *BEGIN PROTECTION REGION* is permitted. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element shall be permitted only if *BEGIN PROTECTION REGION* is permitted. Other: *None.*
	T.18.14 GENERALIZED TEXT PATH MODE [v3] References: 5.5.14	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
Although not currently used, GeoSym4 will permit this because line join of type mitre is being used.	T.18.15 MITRE LIMIT [v3] References: 5.5.15	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None* Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*

Table 18 - Control Elements (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.18.16 TRANSPARENT CELL COLOUR [v3] References: 5.5.16	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** The transparent cell colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** The transparent cell colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter values? *None.* Other: *None.*

Table 19 - Graphical primitive elements

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.19.1 POLYLINE [v1] References: 5.6.1 7.5.4.3 D.2.2.1	Same as Model Profile **YES**	
		Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points or state "no limit": Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points or state "no limit": *4096.* Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.2 DISJOINT POLYLINE [v1] References: 5.6.2 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of points or state "no limit": Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points or state "no limit": *4096.* Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.3 POLYMARKER [v1] References: 5.6.3	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of points or state "no limit": Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points or state "no limit": *4096.* Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*

Table 19 - Graphical primitive elements (continued)

Remarks	**Element**	**Specifications – PPF**	**Specifications - Model Profile**
	T.19.4 TEXT [v1] References: 5.6.4 7.5.4.5	Same as Model Profile **NO** Element: Required **NO** Permitted **YES** Prohibited **NO** The string parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the **not final** flag allowed: (yes/no) ***No, append text not permitted.*** Other: ***None.***	[redacted] Element: Required **NO** Permitted **YES** Prohibited **NO** The string parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the **not final** flag allowed: (yes/no) *Yes.* Other: *None.*
NITF now needs this to restrict text area.	T.19.5 RESTRICTED TEXT [v1] References: 5.6.5 7.5.4.5 T.25.7 D.4.5.2	Same as Model Profile **YES** Element: Required **NO** Permitted **YES** Prohibited **NO** The string parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the **not final** flag allowed: (yes/no) For [v1/2] metafiles, is the realization of *RESTRICTED TEXT* according to one of the standard or registered values for *RESTRICTED TEXT TYPE*? (yes/no) If yes, specify. For [v3] metafiles, *RESTRICTED TEXT TYPE* shall be used if this element is used. Other:	[redacted] Element: Required **NO** Permitted **YES** Prohibited **NO** The string parameter shall follow the rules for graphical text, clause 7.5.4.5. Is the **not final** flag allowed: (yes/no) *Yes.* For [v1/2] metafiles, is the realization of *RESTRICTED TEXT* according to one of the standard or registered values for *RESTRICTED TEXT TYPE*? (yes/no) If yes, specify. *Boxed-cap, also see T.25.7.* For [v3] metafiles, *RESTRICTED TEXT TYPE* shall be used if this element is used. Other: *None.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.19.6 APPEND TEXT [v1] References: 5.6.6 7.5.4.5 D.4.5.1	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** The string parameter shall follow the rules for graphical text, clause 7.5.4.5. Other:	 Element is: Required **NO** Permitted **YES** Prohibited **NO** The string parameter shall follow the rules for graphical text, clause 7.5.4.5. Other: *None.*
	T.19.7 POLYGON [v1] References: 5.6.7 7.5.4.4 D.2.2.2	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points: Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other:	 Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points: *4096.* Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*
	T.19.8 POLYGON SET [v1] References: 5.6.8 7.5.4.4 D.2.2.2	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points: Number of polygons in a set? Zero-area geometric degeneracies shall be defined in clause 7.5.4.4. Other:	 Element is: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points: *4096.* Number of polygons in a set? *No limit.* Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *Each individual polygon within a set shall have at least 3 points.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.19.9 CELL ARRAY [v1] References: 5.6.9 D.4.5.3	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Limit for nx: Limit for ny: Limit for nx * ny: Are rotated and skewed cell arrays allowed? (yes/no) If yes, specify the graphical meaning. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Limit for nx: *2048.* Limit for ny: *2048.* Limit for nx * ny: *4194304.* Are rotated and skewed cell arrays allowed? (yes/no) *No.* If yes, specify the graphical meaning. Other: *Zero-area arrays are prohibited.*
	T.19.10 GENERALIZED DRAWING PRIMITIVE [v1] References: 5.6.10	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** List all registered GDP's that are allowed: List all profile-defined GPD's that are allowed and attach complete description: ***NOTE - Only registered GPD's and profile-defined GPD's shall be allowed in profiles.*** Other:	Element: Required **NO** Permitted **NO** Prohibited **YES** List all registered GDP's that are allowed: List all profile-defined GDP's that are allowed and attach complete description: ***NOTE - Only registered GDP's and profile-defined GDP's shall be allowed in profiles.*** Other:

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.19.11 RECTANGLE [v1] References: 5.6.11 7.5.4.4 D.2.2.2	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies are not allowed. Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*
	T.19.12 CIRCLE [v1] References: 5.6.12 7.5.4.3 D.2.2.2	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies are not allowed. Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*
	T.19.13 CIRCULAR ARC 3 POINT [v1] References: 5.6.13 7.5.4.3 D.2.2.2 D.4.5.4	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *Each individual polygon within a set shall have at least 3 points.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.19.14 CIRCULAR ARC 3 POINT CLOSE [v1] References: 5.6.14 7.5.4.4 D.2.2.2 D.4.5.5	Same as Model Profile **NO** Element is: Required **NO** Permitted **NO** Prohibited **YES** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*
	T.19.15 CIRCULAR ARC CENTRE [v1] References: 5.6.15 7.5.4.3 D.2.2.2 D.4.5.6	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies are not allowed. Other	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.16 CIRCULAR ARC CENTRE CLOSE [v1] References: 5.6.13 7.5.4.4 D.2.2.2 D.4.5.7	Same as Model Profile **YES** Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.4. Other:	[redacted] Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.19.17 ELLIPSE [v1] References: 5.6.17 7.5.4.3 D.4.5.9 D.4.5.10	Same as Model Profile **YES**	
		Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*
	T.19.18 ELLIPTICAL ARC [v1] References: 5.6.18 7.5.4.3 D.2.2.1 D.4.5.11	Same as Model Profile **YES**	
		Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.19 ELLIPTICAL ARC CLOSE [v1] References: 5.6.19 7.5.4.4 D.2.2.2 D.4.5.12	Same as Model Profile **YES**	
		Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.4. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.19.20 CIRCULAR ARC CENTRE REVERSED [v2] References: 5.6.20 7.5.4.3 D.2.2.1 D.4.5.8	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-area geometric degeneracies shall be as defined in clause 7.5.4.4. Other: *None.*
	T.19.21 CONNECTING EDGE [v2] References: 5.6.21 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** This element shall be permitted only if **BEGIN/END FIGURE** is permitted. Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** This element shall be permitted only if **BEGIN/END FIGURE** is permitted. Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.22 HYPERBOLIC ARC [v3] References: 5.6.22 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.19.23 PARABOLIC ARC [v3] References: 5.6.23 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.24 NON-UNIFORM B-SPLINE [v3] References: 5.6.24 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Set of spline orders: Maximum number of control points: Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Set of spline orders: *Cubic spline.* Maximum number of control points: *4096.* Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.25 NON-UNIFORM RATIONAL B-SPLINE [v3] References: 5.6.25 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Set of spline orders: Maximum number of control points: Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Set of spline orders: *Cubic spline.* Maximum number of control points: *4096.* Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.19.26 POLYBEZIER [v3] References: 5.6.26 7.5.4.3 D.2.2.1	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Maximum number of points: Any restrictions on the continuity indicator? Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Maximum number of points: *4096.* Any restrictions on the continuity indicator? *None.* Zero-length geometric degeneracies shall be as defined in clause 7.5.4.3. Other: *None.*
	T.19.27 POLYSYMBOL [v3] References: 5.6.27 D.2.2.1	Same as Model Profile **YES**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Point list:: Effect of a reference to a symbol index parameter which is not in the symbol library: Other:	Element: Required **NO** Permitted **NO** Prohibited **YES** Point list: Effect of a reference to a symbol index parameter which is not in the symbol library: Other: ***NOTE - This element is prohibited because SYMBOL LIBRARY LIST is prohibited.***

Table 19 - Graphical primitive elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.19.28 BITONAL TILE [v3] References: 5.6.28 D.2.2.1 D.4.5.13	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** List allowable compression types: Requirements on row padding: Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** List allowable compression types: *Values 0..6.* Requirements on row padding: *None.* Other: *CCITT compression methods (T6 and T4) should be used with 1 bit cell colour precision and indexed colour.* ***NOTE - Work is in progress on registration of JPEG. When JPEG is registered, it may be added to the allowable compression type values in a future edition of this profile.***
	T.19.29 TILE [v3] References: 5.6.29 D.2.2.1 D.4.5.13	Same as Model Profile **NO** Element: Required **NO** Permitted **NO** Prohibited **YES** List allowable compression types: Requirements on row padding: Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** List allowable compression types: *Values 0..6.* Requirements on row padding: *None.* Other: *CCITT compression methods (T6 and T4) should be used with 1 bit cell colour precision and indexed colour.* ***NOTE - Work is in progress on registration of JPEG. When JPEG is registered, it may be added to the allowable compression type values in a future edition of this profile.***

Table 20 - Attribute elements

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.1	Same as Model Profile **NO**	
	LINE BUNDLE INDEX [v1] References: 5.7.1 7.5.4.2 D.4.6.1 T.17.11	Element: Required **NO** Permitted **NO** Prohibited **YES** The line bundle index parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The line bundle index parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: *1..5.* ***Index*** ***1*** ***2*** ***3*** ***4*** ***5*** *line type* *1* *2* *3* *4* *5* *line width* *1.0* *1.0* *1.0* *1.0* *1.0* *line colour* *1* *1* *1* *1* *1* For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
NITF now requires 1-5.	T.20.2	Same as Model Profile **YES**	
	LINE TYPE [v1] References: 5.7.2 5.4.17 D.4.6.2	Element: Required **NO** Permitted **YES** Prohibited **NO** Select 1 or more of the following: **YES** values 1....5: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): For [v3] metafiles, **YES** Negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other: None	Element: Required **NO** Permitted **YES** Prohibited **NO** Select 1 or more of the following: **YES** values 1..5: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): For [v3] metafiles, **YES** Negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.3	Same as Model Profile **NO**	
	LINE WIDTH [v1] References: 5.7.3 D.4.6.3	Element: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) No If yes, specify its meaning. Any restrictions on the parameter value? Yes, 1 to 100 pixels. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) *Yes.* If yes, specify its meaning. *Minimum available line width.* Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.4	Same as Model Profile **NO**	
	LINE COLOUR [v1] References: 5.7.4 7.5.4.1 T.14.1	Element: Required **NO** Permitted **YES** Prohibited **NO** The line colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Index only. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The line colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? *No*ne. Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.5	Same as Model Profile **NO**	
	MARKER BUNDLE INDEX [v1] References: 5.7.5 7.5.4.2 T.17.12 D.4.6.1	Element: Required **NO** Permitted **NO** Prohibited **YES** The line bundle index parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The line bundle index parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: *1..5.* ***Index*** ***1*** ***2*** ***3*** ***4*** ***5*** *line type* *1* *2* *3* *4* *5* *line width* *1.0* *1.0* *1.0* *1.0* *1.0* *line colour* *1* *1* *1* *1* *1* For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
	T.20.6	Same as Model Profile **NO**	
	MARKER TYPE [v1] References: 5.7.6 D.4.6.4	Element: Required **NO** Permitted **NO** Prohibited **YES** Indicate one or more of the following restrictions: **NO** values 1..5: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Indicate one or more of the following restrictions: **YES** values 1..5: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.7	Same as Model Profile **NO**	
	MARKER SIZE [v1]	Element: Required **NO** Permitted **NO** Prohibited **YES** Is value zero allowed? (yes/no) If yes, specify its meaning. Any restrictions on the parameter value? Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) *Yes.* If yes, specify its meaning. *Minimum available size.* Any restrictions on the parameter value? *None.* Other: *None.*
	References: 5.7.7 D.4.6.5		
	T.20.8	Same as Model Profile **NO**	
	MARKER COLOUR [v1]	Element: Required **NO** Permitted **NO** Prohibited **YES** The marker colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The marker colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? *N*one. Other: *N*one.
	References: 5.7.8 7.5.4.1 T.14.1		

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.9	Same as Model Profile **NO**	
	TEXT BUNDLE INDEX [v1] References: 5.7.9 7.5.4.2 T.17.13 D.4.6.1	Element: Required **NO** Permitted **NO** Prohibited **YES** The marker colour specifier parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v 2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The marker colour specifier parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: *1.2.* ***Index*** ***1*** ***2*** *font index* *1* *1* *text precision* *stroke* *stroke* *character expansion factor* *1.0* *1.0* *character spacing* *0.0* *0.0* *text colour* *1* *1* For [v 2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
	T.20.10	Same as Model Profile **YES**	
	TEXT FONT INDEX [v1] References: 5.7.10 7.5.4.2 T.16.13	Element: Required **NO** Permitted **YES** Prohibited **NO** Every referenced index shall refer to an entry in the FONT LIST (see T.16.13). Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Every referenced index shall refer to an entry in the FONT LIST (see T.16.13). Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.11	Same as Model Profile **NO**	
	TEXT PRECISION [v1] References: 5.7.11	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? String only. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.12	Same as Model Profile **NO**	
	CHARACTER EXPANSION FACTOR [v1] References: 5.7.12	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) No. If yes, state the meaning. Any restrictions on the parameter value? 1.0 only. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) *No.* If yes, state the meaning. Any restrictions on the parameter value? *Values shall be restricted to the range 0.1 - 10.0.* Other: *None.*
	T.20.13	Same as Model Profile **NO**	
	CHARACTER SPACING [v1] References: 5.7.13	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? 0.0 only. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *Values shall be restricted to the range 1.0 - 5.0.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.14	Same as Model Profile **NO**	
	TEXT COLOUR [v1] References: 5.7.14 7.5.4.1 T.14.1	Element is: Required **NO** Permitted **YES** Prohibited **NO** The *text colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Index only. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** The *text colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? *None.* Other: *None.*
NTB/FWG decided on 6-72	T.20.15	Same as Model Profile **NO**	
	CHARACTER HEIGHT [v1] References: 5.7.15 D.4.6.9	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is zero height allowed? (yes/no) No. If yes, state the meaning. Any restrictions on the parameter value? Yes, minimum 6 - 72. Other: None.	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is zero height allowed? *Yes.* If yes, state the meaning. *Minimum available height.* Any restrictions on the parameter value? *None.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	**Element**	**Specifications - PPF**	**Specifications - Model Profile**
	T.20.16 CHARACTER ORIENTATION [v1] References: 5.7.16 D.4.6.10	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the following distortion aspects? Yes. rotation? Not allowed. skewing? Not allowed. mirroring? Not allowed. aspect ratio? Not allowed. Other: In all cases the character orientation will be left to right without rotation for all displayable text strings. The CGM VDC Extent and Character Orientations shall be marked as follows based on quadrant: ***When using quadrant #1 (the VDC Extent element with x increasing right and y increasing up (x1<x2 and y1<y2)), the Character Orientation element is not required, but if present shall be Y= 1 and X = 1*** ***When using quadrant #2 (the VDC Extent element with x increasing left and y increasing up (x1>x2 and y1<y2)), the Character Orientation element is required and shall be Y=1 and X = -1.*** ***When using quadrant #3 (the VDC Extent element with x increasing left and y increasing down (x1>x2 and y1>y2)), the Character Orientation element is required and shall be Y= -1 and X = -1.*** ***When using quadrant #4 (the VDC Extent element with x increasing right and y increasing down (x1<x2 and y1>y2)), the Character Orientation element is required and shall be Y= -1 and X = 1.*** ***By default the Character Orientation shall be 0, 1, 1, 0 (quadrant 1).***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the following distortion aspects? rotation? *None.* skewing? *None.* mirroring? *None.* aspect ratio? *None.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.17	Same as Model Profile **NO**	[redacted]
	TEXT PATH [v1] References: 5.7.17 D.4.6.11	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? Right only. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.18	Same as Model Profile **NO**	[redacted]
	TEXT ALIGNMENT [v1] References: 5.7.18 D.4.6.12	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the horizontal and vertical alignment values? Normal horizontal and vertical only. Any restrictions on the continuous horizontal and vertical alignment values? None. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any retractions on the horizontal and vertical alignment values? *None.* Any restrictions on the continuous horizontal and vertical alignment values? *None.* Other: *None.*
	T.20.19	Same as Model Profile **NO**	[redacted]
	CHARACTER SET INDEX [v1] References: 5.7.19 D.4.6.13 7.5.4.2 T.16.14 T.16.22	Element is: Required **NO** Permitted **NO** Prohibited **YES** Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.20 ALTERNATE CHARACTER SET INDEX [v1] References: 5.7.20 7.5.4.2 T.16.14 D.4.6.13 T.16.22	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Every referenced index shall refer to an entry in the CHARACTER SET LIST or GLYPH MAPPING. This includes implicit reference to the default index value. Other: *None.*
	T.20.21 FILL BUNDLE INDEX [v1] References: 5.7.21 7.5.4.2 T.17.14 D.4.6.1	Same as Model Profile **NO**	
		Element: Required **NO** Permitted **NO** Prohibited **YES** The *fill bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The *fill bundle index* parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: *1..5.* *Index* 1 2 3 4 5 *Interior style* hatch hatch hatch hatch hatch *Fill colour* 1 1 1 1 1 *Hatch index* 1 2 3 4 5 *Pattern index* 1 1 1 1 1 For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	**Element**	**Specifications - PPF**	**Specifications - Model Profile**
	T.20.22	Same as Model Profile **YES**	
NITF now requires hatch.	INTERIOR STYLE [v1] References: 5.7.22 D.4.6.15	Element: Required **NO** Permitted **YES** Prohibited **NO** For hollow interior style, line type and width of the bounding line: Same as model profile. Any restrictions on the parameter value? *None.* Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** For hollow interior style, line type and width of the bounding line: *Solid line type and default line width.* Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.23	Same as Model Profile **NO**	
	FILL COLOUR [v1] References: 5.7.23 7.5.4.1 T.14.1	Element: Required **NO** Permitted **YES** Prohibited **NO** The *fill colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Index only. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The *fill colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? *None.* Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.24	Same as Model Profile **YES**	
GeoSym4 permits this element but does not use it.	HATCH INDEX [v1] References: 5.4.18 D.4.6.16 5.7.24 5.7.4.2	Element: Required **NO** Permitted **YES** Prohibited **NO** Select 1 or more of the following: **YES** values 1..6: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): For [v3] metafiles: **YES** negative values assigned by the HATCH STYLE DEFINITION elements. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Select 1 or more of the following: **YES** values 1..6: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): For [v3] metafiles: **YES** negative values assigned by the HATCH STYLE DEFINITION elements. Other: *None.*
	T.20.25	Same as Model Profile **YES**	
	PATTERN INDEX [v1] References: 5.7.25 7.5.4.2	Element: Required **NO** Permitted **YES** Prohibited **NO** The *pattern index* parameter shall follow the rules for indexes, clause 7.5.4.2. Any restrictions on the parameter value? Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The *pattern index* parameter shall follow the rules for indexes, clause 7.5.4.2. Any restrictions on the parameter value? *None.* Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.26	Same as Model Profile **NO**	
	EDGE BUNDLE INDEX [v1] References: 5.7.26 D.4.6.1 T.17.15 5.7.4.2	Element: Required **NO** Permitted **NO** Prohibited **YES** The edge bundle index parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The edge bundle index parameter shall follow the rules for indexes, clause 7.5.4.2. For [v1] metafiles, allowable index values: *1..5.* ***index*** ***1*** ***2*** ***3*** ***4*** ***5*** *edge type* *1* *2* *3* *4* *5* *edge width* *1.0* *1.0* *1.0* *1.0* *1.0* *edge colour* *1* *1* *1* *1* *1* For [v2/3] metafiles, any referenced bundle shall have an explicit representation definition. Other: *None.*
	T.20.27	Same as Model Profile **YES**	
	EDGE TYPE [v1] References: 5.4.17 7.7.27 D.4.6.17	Element: Required **NO** Permitted **YES** Prohibited **NO** Select 1 or more of the following: **YES** values 1....5: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): For [v3] metafiles: **YES** negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other: ***By default Edge Type will be Solid unless it is specified in the CGM file.***	Element: Required **NO** Permitted **YES** Prohibited **NO** Select 1 or more of the following: **YES** values 1..5: **NO** subset of registered values (attach list): **NO** profile-defined values (attach complete description): For [v3] metafiles: **YES** negative values assigned by the LINE AND EDGE TYPE DEFINITION element. Other: *N*one.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.20.28	Same as Model Profile **NO**	
	EDGE WIDTH [v1] References: 5.7.28 D.4.6.18	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) No. If yes, specify its meaning. Any restrictions on the parameter value? Yes, 1 - 100 Other: *None*	Element is: Required **NO** Permitted **YES** Prohibited **NO** Is value zero allowed? (yes/no) *Yes.* If yes, specify its meaning. *Minimum available edge width.* Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.29	Same as Model Profile **NO**	
	EDGE COLOUR [v1] References: 5.7.29 7.5.4.1 T.14.1	Element is: Required **NO** Permitted **YES** Prohibited **NO** The edge colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Index only. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** The edge colour specifier parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.30	Same as Model Profile **YES**	
	EDGE VISIBILITY [v1] References: 5.7.30	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? None Other: None	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.31	Same as Model Profile **NO**	
	FILL REFERENCE POINT [v1]	Element: Required **NO** Permitted **NO** Prohibited **YES**	Element: Required **NO** Permitted **YES** Prohibited **NO**
		Any restrictions on the parameter value?	Any restrictions on the parameter value? *None.*
	References: 5.7.31	Other:	Other: *None.*
	T.20.32	Same as Model Profile **YES**	
	PATTERN TABLE [v1]	Element: Required **NO** Permitted **YES** Prohibited **NO**	Element: Required **NO** Permitted **YES** Prohibited **NO**
		Maximum size for nx:	Maximum size for nx: *32.*
		Allowable values for nx:	Allowable values for nx: *8, 16, or 32.*
	References: 5.7.32	Maximum size for ny:	Maximum size for ny: *32.*
		Allowable values for ny:	Allowable values for ny: *8, 16, or 32.*
		Any restrictions on the number of pattern definitions?	Any restrictions on the number of pattern definitions? *64.*
		Any restrictions on allowable combinations of nx and ny?	Any restrictions on allowable combinations of nx and ny? *None.*
		Any restrictions on the number of colours?	Any restrictions on the number of colours? *None.*
		Other:	Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.33	Same as Model Profile **YES**	
	PATTERN SIZE [v1] References: 5.7.33 D.4.6.19	Element is: Required **NO** Permitted **YES** Prohibited **NO** Must pattern vectors be parallel to coordinate axes? (yes/no) If no, state of the meaning of skewed or non-aligned patterns. ***NOTE - The description of the layout order of pattern cells in the PATTERN SIZE element (5.7.33) contains an error. The error is corrected by a defect report.*** Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Must pattern vectors be parallel to coordinate axes? (yes/no) *No.* If no, state of the meaning of skewed or non-aligned patterns. Other:
	T.20.34	Same as Model Profile **YES**	
	COLOUR TABLE [v1] References: 5.7.34 7.5.4.1 T.14.1	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the length of colour list? *Monochrome:2, Greyscale:64, Colour:256* Any restrictions on the index values? *Index values shall not exceed the maximum colour index.* Other: *None*	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the length of colour list? *Monochrome:2, Greyscale:64, Colour:256.* Any restrictions on the index values? *Index values shall not exceed the maximum colour index.* Other: *None.*
	T.20.35	Same as Model Profile **NO**	
	ASPECT SOURCE FLAGS [v1] References: 5.7.35 D.4.6.20	Element is: Required **NO** Permitted **NO** Prohibited **YES** Are all ASF values to be the same: for the metafile? (yes/no) within each class (line, marker, text, fill, edge) of primitive? (yes/no) Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Are all ASF values to be the same: for the metafile? (yes/no) *No.* within each class (line, marker, text, fill, edge) of primitive? (yes/no) *Yes.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.36	Same as Model Profile **YES**	
	PICK IDENTIFIER [v2] References: 5.7.36	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None* Other: *None*	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*
	T.20.37	Same as Model Profile **YES**	
	LINE CAP [v3] References: 5.7.37 7.5.7.5 T.25.7	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values for the line cap indicator? (choose 1 or both) **YES** values 1..5: **NO** subset of registered values (attach list): Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) **YES** values 1..3: **NO** subset of registered values (attach list): Other: *None*	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values for the line cap indicator? (choose 1 or both) **YES** values 1..5: **NO** subset of registered values (attach list): Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) **YES** values 1..3: **NO** subset of registered values (attach list): Other: *None*.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.38	Same as Model Profile **YES**	
	LINE JOIN [v3] References: 5.7.38 7.5.7.5 T.25.7	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? (choose 1 or both) **YES** values 1..4: **NO** subset of registered values (attach list): Other: None	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? (choose 1 or both) **YES** values 1..4: **NO** subset of registered values (attach list): Other: *None.*
	T.20.39	Same as Model Profile **YES**	
	LINE TYPE CONTINUATION [v3] References: 5.7.39 7.5.7.5 T.25.7	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? 1..4 Other: None	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? *1..4.* Other: *None.*
	T.20.40	Same as Model Profile **NO**	
	LINE TYPE INITIAL OFFSET [v3] References: 5.7.40	Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.41	Same as Model Profile **NO**	
	TEXT SOURCE TYPE [v3] References: 5.7.41	Element: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the set of values? (choose 1 or both) **NO** values 1..4: **NO** subset of registered values (attach list): Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? (choose 1 or both) **YES** values 1..4: **NO** subset of registered values (attach list): Other: *None.*
	T.20.42	Same as Model Profile **NO**	
	RESTRICTED TEXT TYPE [v3] References: 5.7.42 7.5.7.5 T.25.7	Element: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the set of values? (choose 1 or both) **NO** values 1..6: **NO** subset of registered values (attach list): Algorithms for achieving restriction type? (attach) Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? (choose 1 or both) **YES** values 1..6: **NO** subset of registered values (attach list): Algorithms for achieving restriction type? (attach) *Not specified.* Other: *No*ne.

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.43	Same as Model Profile **NO**	
	INTERPOLATED INTERIOR [v3] References: 5.7.43	Element: Required **NO** Permitted **NO** Prohibited **YES** Any limits on the number of stages? Any restrictions on the set of values? (choose 1 or both) **NO** values 1..3: **NO** subset of registered values (attach list): Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the number of stages? *M*aximum number of stages is 8. Any restrictions on the set of values? (choose 1 or both) **YES** values 1..3: **NO** subset of registered values (attach list): Other: *None*.
	T.20.44	Same as Model Profile **NO**	
	EDGE CAP [v3] References: 5.7.44 7.5.7.5 T.25.7	Element: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the set of values for the edge cap indicator? (choose 1 or both) **NO** values 1..5: **NO** subset of registered values (attach list): Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) **NO** values 1..3: **NO** subset of registered values (attach list): Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values for the edge cap indicator? (choose 1 or both) **YES** values 1..5: **NO** subset of registered values (attach list): Any restrictions on the set of values for the dash cap indicator? (choose 1 or both) **YES** values 1..3: **NO** subset of registered values (attach list): . Other: *No*ne.

Table 20 - Attribute elements(continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.45	Same as Model Profile **NO**	
	EDGE JOIN [v3] References: 5.7.45 7.5.7.5 T.25.7	Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the set of values? (choose 1 or both) **NO** values 1..4: **NO** subset of registered values (attach list): Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? (choose 1 or both) **YES** values 1..4: **NO** subset of registered values (attach list): Other: *None.*
	T.20.46	Same as Model Profile **NO**	
	EDGE TYPE CONTINUATION [v3] References: 5.7.46 7.5.7.5 T.25.7	Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the set of values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the set of values? *1..4.* Other: *None.*
	T.20.47	Same as Model Profile **NO**	
	EDGE TYPE INITIAL OFFSET [v3] References: 5.7.47	Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *None.* Other: *None.*

Table 20 - Attribute elements (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.20.48	Same as Model Profile **NO**	
	SYMBOL LIBRARY INDEX [v3] References: 5.7.48 7.5.4.2 T.16.23	Element is: Required **NO** Permitted **NO** Prohibited **YES** Every referenced index shall refer to an entry in the SYMBOL LIBRARY LIST (see T.16.23). Other:	Element is: Required **NO** Permitted **NO** Prohibited **YES** Every referenced index shall refer to an entry in the SYMBOL LIBRARY LIST (see T.16.23). Other: *This element is prohibited because SYMBOL LIBRARY LIST is prohibited.*
	T.20.49	Same as Model Profile **NO**	
	SYMBOL COLOUR [v3] References: 5.7.49 7.5.4.1 T.14.1 T.16.23 D.4.6.21	Element is: Required **NO** Permitted **NO** Prohibited **YES** The *symbol colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **NO** Prohibited **YES** The *symbol colour specifier* parameter shall follow the rules for colour, clause 7.5.4.1 and T.14.1. Any restrictions on the parameter value? Other: *This element is prohibited because SYMBOL LIBRARY LIST is prohibited.*
	T.20.50	Same as Model Profile **NO**	
	SYMBOL SIZE [v3] References: 5.7.50 T.16.23	Element is: Required **NO** Permitted **NO** Prohibited **YES** Is value zero allowed: (yes/no) If yes, specify its meaning. Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **NO** Prohibited **YES** Is value zero allowed: (yes/no) If yes, specify its meaning. Any restrictions on the parameter value? Other: *This element is prohibited because SYMBOL LIBRARY LIST is prohibited.*

Table 20 - Attribute elements(continued)

Remarks	**Element**	**Specifications - PPF**	**Specifications - Model Profile**
	T.20.51	Same as Model Profile **NO**	
	SYMBOL ORIENTATION [v3]	Element: Required **NO** Permitted **NO** Prohibited **YES**	Element is: Required **NO** Permitted **NO** Prohibited **YES**
		Any restrictions on rotation?	Any restrictions on rotation?
		Any restrictions on skewing?	Any restrictions on skewing?
	References: 5.7.51 T.16.23 D.4.6	Any restrictions on mirroring?	Any restrictions on mirroring?
		Any restrictions on distortion of aspect ratio?	Any restrictions on distortion of aspect ratio?
		Other:	Other: *This element is prohibited because SYMBOL LIBRARY LIST is prohibited.*

Table 21 - Escape elements

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.21.1	Same as Model Profile **NO**	
	ESCAPE [v1]	Element: Required **NO** Permitted **NO** Prohibited **YES**	Element is: Required **NO** Permitted **YES** Prohibited **NO**
		List all registered ESCAPEs that are allowed:	List all registered ESCAPEs that are allowed: *ESCAPE 22, Transparent Cell Colour [v1/v2] metafiles only.*
	References: 5.8.1	List all profile-defined ESCAPEs that are allowed and attach complete description:	List all profile-defined ESCAPEs that are allowed and attach complete description: *None.*
		NOTE - Only registered ESCAPEs and profile-defined ESCAPEs shall be allowed in profiles.	
		Other:	Other: *None.*

Table 22 - External elements

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.22.1	Same as Model Profile **NO**	
	MESSAGE [v1] References: 5.9.1	Element: Required **NO** Permitted **NO** Prohibited **YES** Values of the *action required flag* parameter: 'action' Permitted **NO** Prohibited **NO** (If permitted, specify the messages and actions taken) 'no action' Permitted **NO** Prohibited **NO** Any restrictions on the length of the message string, other than those for type SF parameter? Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** Values of the *action required flag* parameter: 'action' Permitted **NO** Prohibited **YES** (If permitted, specify the messages and actions taken) 'no action' Permitted **YES** Prohibited **NO** Any restrictions on the length of the message string, other than those for type SF parameter? *None.* Other: *None.*
	T.22.2	Same as Model Profile **NO**	
	APPLICATION DATA [v1] References: 5.9.2	Element: Required **NO** Permitted **NO** Prohibited **YES** The use of this element shall not be restricted. Attach a syntactic and semantic description of all application data elements associated with this profile. Other:	Element: Required **NO** Permitted **YES** Prohibited **NO** The use of this element shall not be restricted. Attach a syntactic and semantic description of all application data elements associated with this profile. Other: *No*ne.

Table 23 - Segment elements

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.23.1 COPY SEGMENT [v2] References: 5.10.1 D.4.9.2	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Every segment identifier shall refer to a defined segment. Any limits on the segment transformation application value? Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Every segment identifier shall refer to a defined segment. Any limits on the segment transformation application value? *None.* Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? *Non-singular.* Other: *None.*
	T.23.2 INHERITANCE FILTER [v2] References: 5.10.2	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Any limits on the filter selection list? Any limits on the selection setting? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the filter selection list? *None.* Any limits on the selection setting? *None.* Other: *None.*
	T.23.3 CLIP INHERITANCE [v2] References: 5.10.3 D.4.9.2	Same as Model Profile **NO**	
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Any limits on the parameter? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any limits on the parameter? *None.* Other: *None.*

Table 23 - Segment elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.23.4 SEGMENT TRANSFORMATION [v2] References: 5.10.4	Same as Model Profile **NO**	[redacted]
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the nature of the transformation (e.g., permitting only isotropic transformations)? *Non-singular*. Other: *None.*
	T.23.5 SEGMENT HIGHLIGHTING [v2] References: 5.10.5	Same as Model Profile **NO**	[redacted]
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *None* Other: *None.*
	T.23.6 SEGMENT DISPLAY PRIORITY [v2] References: 5.10.6	Same as Model Profile **NO**	[redacted]
		Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *None* Other: *None.*

Table 23 - Segment elements (continued)

Remarks	**Element**	**Specifications - PPF**	**Specifications - Model Profile**
	T.23.7	Same as Model Profile **NO**	
	SEGMENT PICK PRIORITY [v2] References: 5.10.7	Element: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter values? Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter values? *None.* Other: *None.*

Table 24 - Generator implementation requirements

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.24.1	Same as Model Profile **YES**	
	Colour requirements References: 5.5.4.1 7.5.6.2.1	Element: Permitted **YES** Prohibited **NO** Reduction of the number of colours? Definition of mapping algorithms, metrics, and colour space? For [v1/v2] metafiles, implicit colour calibration specification? Other:	Element: Permitted **YES** Prohibited **NO** Reduction of the number of colours? *Not specified.* *NOTE - If mapping of application colours to metafile colour specification is required. It is recommended that colour distance in the mapping be computed by the Euclidean metric in CIEXYZ space.* Definition of mapping algorithms, metrics, and colour space? *No specific colour mapping techniques or selection of metafile colour sets are defined.* For [v1/v2] metafiles, implicit colour calibration specification? *No specifications are defined.* Other: *None.*
	T.24.2	Same as Model Profile **YES**	
	Geometric accuracy and latitude References: 7.5.6.2	Accuracy and latitude for mapping application graphics to CGM graphical primitive elements:	Accuracy and latitude for mapping application graphics to CGM graphical primitive elements: *Generators shall produce a metafile whose graphical primitive elements match the application graphical primitives accurately to within 0.1% of relative position within the VDC Extent box or 1/2 pixel of the intended size, whichever is greater.* *This requirement shall apply to all graphical primitive elements, unless superseded by specific element requirements in this clause.*

Table 24 - Generator implementation requirements (continued)

Remarks	**Functionality**	**Specifications – PPF**	**Specifications - Model Profile**
	T.24.3	Same as Model Profile **YES**	
	Text accuracy and latitude References: 7.5.6.2.4	Is text accuracy and latitude addressed? (yes/no) If yes, specify.	Is text accuracy and latitude addressed? (yes/no) *Yes.* If yes, specify. *Metafile text specifications shall match the text of the application picture to within 1% of relative to the intended size or 1/2 pixel of the intended size, whichever is greater, for the placement and overall extent of each text string.*
	T.24.4	Same as Model Profile **YES**	
	Font substitution References: 7.5.6.2.5 annex H	Font substitution is: Permitted **YES** Prohibited **NO** Similarity of font visual characteristics? Font metrics? Individual glyph metrics? Other:	Font substitution is: Permitted **YES** Prohibited **NO** Similarity of font visual characteristics? *Substituted fonts shall have similar visual characteristics (e.g., posture, weight, and proportionate width).* Font metrics? *Specified in annex H.* Individual glyph metrics? *Specified in annex H.* Other: *None.*
	T.24.5	Same as Model Profile **YES**	
	Preservation of primitives References: 7.5.6.3	Is preservation of graphical primitive elements addressed? (yes/no) If yes, specify allowable substitutions.	Is preservation of graphical primitive elements addressed? (yes/no) *No.* If yes, specify allowable substitutions.

Table 24 - Generator implementation requirements (continued)

Remarks	**Functionality**	**Specifications – PPF**	**Specifications - Model Profile**
	T.24.6	Same as Model Profile **YES**	
	Semantic latitude References: 7.5.6.4	Drawing priority and mode: Priority shall correspond to the metafile order (i.e., primitives occurring later in the file shall overlay primitives occurring earliest in the file). Mode shall be "replacement mode". Clipping: Edge centering: Meaning of predefined line types and edge types: Meaning of predefined hatch styles: Other: *None.*	Drawing priority and mode: *Priority shall correspond to the metafile order (i.e., primitives occurring later in the file shall overlay primitives occurring earliest in the file). Mode shall be "replacement mode".* Clipping: *Clipping shall be to the intersection of the clip rectangle, the VDC EXTENT, the device viewport, and the device view surface limits.* Edge centering: *Edges shall be centered on the ideal mathematically-defined edge of the area.* Meaning of predefined line types and edge types: *The exact on-off definitions for the predefined line types and edge types are not specified.* Meaning of predefined hatch styles: *The inter-line spacing is not specified. Use the latitudes of annex D4.6.16 for the angular directions.* Other: *None.*
	T.24.7	Same as Model Profile **YES**	
	Error processing References: 7.5.6.5	Is error processing addressed? (yes/no) *No* If yes, specify the action taken. Classification of error severity? *No* Requirements for error recovery? *No* Requirements for error reporting? *No* Additional areas? *No* Other:	Is error processing addressed? (yes/no) *No.* If yes, specify the action taken. Classification of error severity? Requirements for error recovery? Requirements for error reporting? Additional areas? Other: *None.*

Table 24 - Generator implementation requirements (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.24.8	Same as Model Profile **YES**	
	Reporting References: 7.5.6.6	Is reporting required? (yes/no) *No* If yes, specify action taken. Method and format of the reporting? Requirement to report substitution, error, fallback behavior, mappings, or other behaviors? Additional areas? Other:	Is reporting required? (yes/no) *No.* If yes, specify action taken. Method and format of the reporting? Requirement to report substitution, error, fallback behavior, mappings, or other behaviors? Additional areas? Other: *None.*
	T.24.9	Same as Model Profile **NO**	
	Degeneracies References: 7.5.6.7 7.5.4.4 D.2 D.4	Is the generation of degenerate primitives addressed? (yes/no) Yes. If yes, attach specifications. *Refer to ISO 8632-1 Annex D* Other:	Is the generation of degenerate primitives addressed? (yes/no) *No. The generation of degenerate primitives is not restricted.* If yes, attach specifications Other: *None.*
	T.24.10	Same as Model Profile **NO**	
	APPLICATION STRUCTURE ATTRIBUTE [V4] References: 4.9 5.9.3	Element: Required **NO** Permitted **YES** Prohibited **NO** Attribute type parameter shall be unique within the scope of the application structure Attribute types restricted to those defined in 3. Attribute values limited to a subset of SDR data types as defined in 3. Other: *None.*	Element: Required **NO** Permitted **YES** Prohibited **NO** Define the set of structure attribute elements for use within application structures, and attach complete syntactic and semantic description: *None.* Other: *None.*

Table 25 - Interpreter implementation requirements

Remarks	**Functionality**	**Specifications – PPF**	**Specifications - Model Profile**
	T.25.1	Same as Model Profile **YES**	
	Number of pictures References: 7.5.7.2 T.13.2	If 0 pictures are permitted (see T.13.2), describe the interpreter behavior:	If 0 pictures are permitted (see T.13.2), describe the interpreter behavior: *Prohibited by T.13.2.*
	T.25.2	Same as Model Profile **NO**	
	Empty pictures References: 7.5.7.3 T.13.3	If permitted (see T.13.3), interpreter behavior: Prohibited : Not permitted by T.13.3 (Part 1)	If permitted (see T.13.3), interpreter behavior: *The graphical effect shall be one picture in the background colour.*
	T.25.3	Same as Model Profile **YES**	
	Colour requirements References: 7.5.4.1 7.5.7.4.1 7.5.4.5	Interpreters shall be classified as either monochrome, greyscale, or colour interpreters (depending on the colour capability of the interpreter), and shall meet the criteria in attachment 25.4. Conversions between different colour models shall be according to the conversions ISO / IEC 8632 Functional Spec. Mapping of metafile colour to device components? For [v1/2] metafiles, implicit colour calibration specifications? No specifications are defined. Other:	Interpreters shall be classified as either monochrome, greyscale, or colour interpreters (depending on the colour capability of the interpreter), and shall meet the criteria in attachment 25.4. Conversions between different colour models shall be according to the conversions in annex G. Mapping of metafile colour to device components? *If mapping (to fewer colour, or greyscale, or monochrome) is required for RGB metafiles, the recommendations of annex D.3.2 shall be used.* For [v1/2] metafiles, implicit colour calibration specifications? *No specifications are defined.* Other: *None.*

Table 25 - Interpreter implementation requirements (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.25.4	Same as Model Profile **YES**	
	Geometric accuracy and latitude References: 7.5.7.4.2	Accuracy and latitude for placement and realization of geometric aspects when geometric primitive elements are rendered.	Accuracy and latitude for placement and realization of geometric aspects when geometric primitive elements are rendered. *Interpreters shall render graphical primitive elements accurately to within 0.1% of relative position within the VDC Extent box or 1/2 of the pixel resolution of the output device, whichever is greater. Interpreters shall render the geometric size aspect of primitives (e.g., text size, line width, and edge width) to within 1% of the intended size or 1/2 pixel of resolution of the output device, whichever is greater.* *This requirement shall apply to all graphical primitive elements, unless superseded by specific element requirements in this clause.*
	T.25.5	Same as Model Profile **YES**	
	Text rendering References: 7.5.7.4.3 T.25.3	Is text accuracy and latitude addressed? (yes/no) If yes, specify. Is precision of text rendering addressed? (yes/no) If yes, specify interpretation.	Is text accuracy and latitude addressed? (yes/no) *Yes.* If yes, specify. *Interpreter-rendered text shall match the text specification of the metafile to within 1% relative to the intended size or 1/2 pixel of resolution of the output device, whichever is greater, for the placement and overall extent of each text string.* Is precision of text rendering addressed? (yes/no) *Yes.* If yes, specify interpreter action. *Interpreters shall render text using 'stroke' precision, regardless of the actual value of the TEXT PRECISION of the metafile.*

Table 25 - Interpreter implementation requirements (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.25.6	Same as Model Profile **NO**	
	Font substitution References: 7.5.7.4.4 T.16.13 annex H	Font substitution is: Permitted **YES** Prohibited **NO** If prohibited, use the font as specified in the FONT LIST. If permitted, include a reference set of font and glyph metrics which correspond to the canonical instances of the substitutable font. See attached font list, clause 6. Are substitution methods, latitudes, and constraints addressed? (yes/no) Yes. If yes, specify. Similarity of font visual characteristics? *Substituted fonts shall have similar visual characteristics to the fonts specified in the metafile.* Font metrics? *Substituted fonts shall have similar metrics to the fonts specified in the metafile.* Individual glyph metrics? As specified in Annex H. Additional areas? None. Other: ***SAMI interpreters must support one or more of the SAMI supported fonts as identified in the font list, clause 6.2. If an interpreter receives a font that it does not support it will substitute it with the closest font it has available.***	Font substitution is: Permitted **YES** Prohibited **NO** If prohibited, use the font as specified in the FONT LIST. If permitted, include a reference set of font and glyph metrics which correspond to the canonical instances of the substitutable font. *See the FONT LIST element and annex H.* Are substitution methods, latitudes, and constraints addressed? (yes/no) *Yes.* If yes, specify. Similarity of font visual characteristics? *Substituted fonts shall have similar visual characteristics to the fonts specified in the metafile.* Font metrics? *Substituted fonts shall have similar metrics to the fonts specified in the metafile.* Individual glyph metrics? *As specified in annex H.* Additional areas? *None.* Other: *None.*
	T.25.7	Same as Model Profile **NO**	
	Semantic latitude References: 7.5.7.5 T.20.37 T.20.38 T.20.39 T.20.42 T.20.44 T.20.45 T.20.46	Drawing priority and mode: Same as model profile. View surface clearing at picture start: The surface shall not be cleared when the Begin Picture Body occurs. Clipping: Clipping is not supported.	Drawing priority and mode: *Priority shall correspond to the metafile order (i.e., primitives occurring later in the file shall overlay primitives occurring earliest in the file. Mode shall be "replacement" mode.* View surface clearing at picture start: *Surface will be cleared upon the occurrence of BEGIN PICTURE BODY.* Clipping: *When CLIP INDICATOR is 'off', clipping shall be to the intersection of the device viewport and the device view surface limits. When CLIP INDICATOR is 'on', clipping shall be to the intersection of the clip rectangle, the VDC EXTENT, the device viewport, and the device view surface limits.*

Table 25 - Interpreter implementation requirements (continued)

Remarks	**Functionality**	**Specifications – PPF**	**Specifications - Model Profile**
	T.25.7 continued Semantic latitude	Edge centering: Same as model profile. Meaning of predefined line types and edge types: Same as model profile. Meaning of predefined hatch styles: Same as model profile. For [v1/2] metafiles, text restriction method for RESTRICTED TEXT elements, chosen from the set of standard and registered styles of the RESTRICTED TEXT TYPE element: Not Permitted by Table reference T.20.42. For [v1/2] metafiles, interpreter treatment of the 2 aspects of line cap shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element. . For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge cap shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE CAP element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE CAP element. *Not Permitted by Table reference T.20.44.* For [v1/2] metafiles, interpreter treatment of the 2 aspects of line join shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE JOIN element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE JOIN element.	Edge centering: *Edges shall be centered on the ideal mathematically-defined edge of the area.* Meaning of predefined line types and edge types: *The exact on-off definitions for the predefined line types and edge types are not specified.* Meaning of predefined hatch styles: *The inter-line spacing is not specified. Use the latitudes of annex D.4.6.16 for the angular directions.* For [v1/2] metafiles, text restriction method for RESTRICTED TEXT elements, chosen from the set of standard and registered styles of the RESTRICTED TEXT TYPE element: For [v1/2] metafiles, interpreter treatment of the 2 aspects of line cap shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE CAP element. For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge cap shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE CAP element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE CAP element. For [v1/2] metafiles, interpreter treatment of the 2 aspects of line join shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE JOIN element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE JOIN element.

Table 25 - Interpreter implementation requirements (continued)

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.25.7 continued Semantic latitude	For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge join shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE JOIN element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE JOIN element. *Not Permitted by Table reference T.20.45.*	For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge join shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE JOIN element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE JOIN element.
		For [v1/2] metafiles, interpreter treatment of the 2 aspects of line type continuation shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE TYPE CONTINUATION element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE TYPE CONTINUATION element.	For [v1/2] metafiles, interpreter treatment of the 2 aspects of line type continuation shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the LINE TYPE CONTINUATION element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the LINE TYPE CONTINUATION element.
		For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge type continuation shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE TYPE CONTINUATION element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE TYPE CONTINUATION element. *Not Permitted by Table reference T.20.46.*	For [v1/2] metafiles, interpreter treatment of the 2 aspects of edge type continuation shall be either: **NO** In the style of one specific parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE TYPE CONTINUATION element. Values = ? **YES** In the style of any parameter value pair from the set of standard and registered values (excluding values 1) of the EDGE TYPE CONTINUATION element.
		Other:	Other:

Table 25 - Interpreter implementation requirements (continued)

Remarks	Functionality	Specifications - PPF	Specifications - Model Profile
	T.25.8	Same as Model Profile **NO**	[redacted]
	Error processing References: 7.5.7.6	Is error processing addressed? (yes/no) Yes. If yes, specify the action taken. Classification of error severity? *No.* Requirements for error recovery? *Yes. The implementation for SAMI shall either ignore or substitute for any CGM element and associated parameters not supported in this profile and continue to interpret the next element supported in the CGM implementation for SAMI.* Requirements for error reporting? *Yes, The implementation for SAMI shall report errors encountered during the input and interpretation of the CGM file.* Additional areas? *No.* Other:	Is error processing addressed? (yes/no) *No.* If yes, specify the action taken. Classification of error severity? Requirements for error recovery? Requirements for error reporting? Additional areas? Other: *None.*
	T.25.9 Reporting References: 7.5.7.7	Same as Model Profile **NO** Is reporting required? (yes/no) *No.* If yes, specify the action taken. Method and format of the reporting? *The implementation for SAMI when encountering an error shall report at least that error(s) were encountered during the input and interpretation of the CGM file. No format is specified.* Requirement to report any substitution, error, fallback behavior, mapping, or other behaviors? *No.* Additional areas? *No.* Other: *None.*	[redacted] Is reporting required? (yes/no) *No.* If yes, specify the action taken. Method and format of the reporting? Requirement to report any substitution, error, fallback behavior, mapping, or other behaviors? Additional areas? Other: *None.*

Table 25 - Interpreter implementation requirements (continued)

	Functionality	**Specifications - PPF**	**Specifications - Model Profile**
	T.25.10	Same as Model Profile **YES**	
	Degeneracies References: 7.5.7.8 7.5.4.4 D.2 D.4	Is the interpretation of degeneracies primitive addressed? (yes/no) . *Yes* If yes, for each primitive, specify the degeneracy including its source . *Intrinsically degenerate primitives shall be rendered as specified in ISO 8632-1 annex D subsections: D.2.2, D.2.3, D.4.5.4 through D.4.5.8, D.4.5.11, and D.4.5.12. If interpreters do detect computational degeneracies, they shall be rendered as specified in annex D subsections: D.2.2, D.2.3, D.4.5.4 through D.4.5.8, D.4.5.11 and D.4.5.12.* Other: *None*.	Is the interpretation of degeneracies primitive addressed? (yes/no) *Yes.* If yes, for each primitive, specify the degeneracy including its source . *Intrinsically degenerate primitives shall be rendered as specified in annex D subsections: D.2.2, D.2.3, D.4.5.4 through D.4.5.8, D.4.5.11, and D.4.5.12. If interpreters do detect computational degeneracies, they shall be rendered as specified in annex D subsections: D.2.2, D.2.3, D.4.5.4 through D.4.5.8, D.4.5.11 and D.4.5.12.* Other: *None.*
	T.25.11	Same as Model Profile **YES**	
	Transparency References: 5.5.3 5.5.4 T.18.4	If transparency permitted, specify:	If transparency permitted, specify: *Interpreters shall implement the AUXILLIARY COLOUR and TRANSPARENCY elements as described in the 2nd and 3rd paragraphs of the description in 5.5.4.*

Table 26 - GeoSym4 Specific Application Structure Attributes

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.1	Same as Model Profile **N/A**	
	IC_Color Name Table [v4] References:	Element is: Required **YES** Permitted **NO** Prohibited **NO** Description: Format: BEGAPS "IC_ColorNameTable" "IC_ColorNameTable" STLIST;	
	T.26.1.1	Same as Model Profile **N/A**	
	IC_Color Names [v4] References: T.26.1	Element is: Required **YES** Permitted **NO** Prohibited **NO** Description: Color token names Type: 14 string # of values: 92 Format: APSATTR "IC_ColorNames" ' 14 92 "white" "black" "yellow" "magenta" "cyan" "blue" "green" "red" "ADINF" "aero-blue" "APLRT" "ARPA1" "ARPA2" "beige-rose" "blue_3" "blue_4" "blue_5" "CHBLK" "CHBRN" "CHCOR" "CHGRD" "CHGRF" "CHGRN" "CHMGD" "CHMGF" "CHRED" "CHWHT" "CHYLW" "CSTLN" "CURSR" "dark-beige" "dark-green" "dark-magenta" "dark-red-brown" "dark-tan" "dark-yellow" "DEPCN" "DEPDW" "DEPIT" "DEPMD" "DEPMS" "DEPSC" "DEPVS" "DNGHL" "ISDNG" "LANDA" "LANDF" "light-beige" "light-tan" "lite-red-brown" "LITGN" "LITRD" "LITYW" "med-beige" "med-purple" "med-red-brown" "med-rose" "med-tan" "NINFO" "NODTA" "OUTLL" "OUTLW" "PLRTE" "PSTRK" "RADHI" "RADLO" "RES01" "RES02" "RES03" "RES04" "RES05" "RESBL" "RESGR" "RESYW" "SCLBR" "SHIPS" "SNDG1" "SNDG2" "SYTRK" "TRFCD" "TRFCF" "UIAFD" "UIAFF" "UIBCK" "UIBDR" "UINFB" "UINFD" "UINFF" "UINFG" "UINFM" "UINFO" "UINFR"';	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.2	Same as Model Profile **N/A**	[redacted]
	Line Style [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Name given to the line style Type: 14 string # of values: 1 Format: BEGAPS "[cgm file name without extension].1" "LineStyle" STLIST; Example: BEGAPS "0613.1" "LineStyle" STLIST;	
	T.26.3	Same as Model Profile **N/A**	[redacted]
	Line Style Component [v4] References: T.26.2	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Line Style Component identification Type: 14 string # of values: 1 Format: BEGAPS "[cgm file name without extension].1.Component.[component number]" "LineStyleComponent" STLIST; Example: BEGAPS "0613.1.Component.1" "LineStyleComponent" STLIST; Position: Within BEGAPSBODY of LineStyle (See T.26.2)	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.3.1	Same as Model Profile **N/A**	
	Line Width [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Thickness of line Type: 12 real # of values: 1 Restrictions on values: Must be > 0 Format: APSATTR “LineWidth” “ 12 1 [width of line]”; Example: APSATTR “LineWidth” “ 12 1 0.64”;	
	T.26.3.2	Same as Model Profile **N/A**	
	Line Color [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Color token index; color of line Type: 11 index # of values: 1 Restrictions on values: integers -1 through 95 -1 indicates that no color was selected for the component; this is only applicable if the component consists solely of point symbols Format: APSATTR “LineColor” “ 11 1 [color index]”; Example: APSATTR “LineColor” “ 11 1 41”;	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.3.3	Same as Model Profile **N/A**	
	Start Anchor [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Placement of first element relative to the line in the x-axis Type: 5 coded list # of values: 1 Restrictions on values: 0 = beginning 1 = middle 2 = end Format: APSATTR “StartAnchor” “ 5 1 [start position code]”; Example: APSATTR “StartAnchor” “ 5 1 0”;	
	T.26.3.4	Same as Model Profile **N/A**	
	Iteration Type [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Placement of element is to be continuous for the duration of the line or single iteration Type: 5 coded list # of values: 1 Restrictions on values: 0 = continuous 1 = single Format: APSATTR “IterationType” “ 5 1 [iteration type]”; Example: APSATTR “IterationType” “ 5 1 0”;	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.3.5	Same as Model Profile **N/A**	
	Start Phase [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: The offset distance of the first element from the start anchor. Type: 12 real # of values: 1 Restrictions on values: Must be > 0 Format: APSATTR “StartPhase” “ 12 1 [start phase]”; Example: APSATTR “StartPhase” “ 12 1 0”;	
	T.26.4	Same as Model Profile **N/A**	
	Line Component Element [v4] References: T.26.3	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Line Style Element identification Type: 14 string # of values: 1 Format: BEGAPS “[cgm file name without extension].1.Component.[component number].Element.[element number]” “LineComponentElement” STLIST; Example: BEGAPS “0613.1.Component.1.Element.1” “LineComponentElement” STLIST; Position: Within BEGAPSBODY of LineStyleComponent (See T.26.3)	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.4.1	Same as Model Profile **N/A**	
	Element Type [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Type of element Type: 5 coded list # of values: 1 Restriction on values: 0 = dash 1 = gap 2 = point symbol Format: APSATTR “ElementType” “ 5 1 [element type]”; Example: APSATTR “ElementType” “ 5 1 1”;	
	T.26.4.2	Same as Model Profile **N/A**	
	Element Length [v4] References:	Element is: Required **YES if Line Style is present** Permitted **NO** Prohibited **NO** Description: Length of the dash or gap (will be populated automatically for point symbols). Type: 12 real # of values: 1 Restrictions on values: If element type *dash* is selected, 0 = solid line values > 0 = length of dash values < 0 not allowed If element type *gap* is selected there is no restriction on values. Format: APSATTR “ElementLength” “ 12 1 [element length]”; Example: APSATTR “ElementLength” “ 12 1 3.6”;	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.4.3	Same as Model Profile **N/A**	
	Vertical Displacement [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Vertical distance between the center of the element and the projected path of the line. Type: 12 real # of values: 1 Format: APSATTR “VerticalDisplacement” “ 12 1 [vertical displacement]”; Example: APSATTR “VerticalDisplacement” “ 12 1 0”;	
	T.26.4.4	Same as Model Profile **N/A**	
	Symbol Definition [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: File name of cgm point symbol. Type: 14 string # of values: 1 Format: APSATTR “SymbolDefinition” ‘ 14 1 “[symbol definition]”’; Example: APSATTR “SymbolDefinition” ‘ 14 1 “5010.cgm”’;	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.4.5	Same as Model Profile **N/A**	
	Symbol Scale [v4] References:	Element is: Required **YES if SymbolDefinition is present** Permitted **NO** Prohibited **NO** Description: Scale factor of the IHO point component symbol. Type: 12 real # of values: 1 Restrictions on values: Must be >0 Format: APSATTR “SymbolScale” “ 12 1 [symbol scale]”; Example: APSATTR “SymbolScale” “ 12 1 1”;	
	T.26.4.6	Same as Model Profile **N/A**	
	Symbol Orientation [v4] References:	Element is: Required **YES if SymbolDefinition is present** Permitted **NO** Prohibited **NO** Description: IHO point symbol orientation with respect to the symbol line. Type: 5 coded list # of values: 1 Restrictions on values: 0 = constant angle 1 = tangential Format: APSATTR “SymbolOrientation” “ 5 1 [symbol orientation]”; Example: APSATTR “SymbolOrientation” “ 5 1 1”;	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.4.7	Same as Model Profile **N/A**	[redacted]
	Symbol Initial Angle [v4] References:	Element is: Required **YES if SymbolOrientation is set to constant** Permitted **NO** Prohibited **NO** Description: Initial angle of the point symbol with respect to the x-axis. This attribute is only applicable if the Symbol Orientation is set to 0 for constant angle. Type: 12 real # of values: 1 Restrictions on values: Must be >= 0 and <= 360 Format: APSATTR "SymbolInitAngle" " 12 1 [symbol angle]"; Example: APSATTR "SymbolInitAngle" " 12 1 30"; **Note**: All GeoSym4 symbols were built using a tangential symbol orientation where orientation was applicable. Therefore, the SymbolInitAngle attribute does not appear in any of the GeoSym4 cgms.	
	T.26.5	Same as Model Profile **N/A**	[redacted]
	IC_Viewport Table [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Type: 14 string # of values: 1 Format: BEGAPS "IC_ViewportTable" "IC_ViewportTable" STLIST; **Note:** This element is to be ignored by application software for GeoSym4.	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	**Element**	**Specifications – PPF**	**Specifications - Model Profile**
	T.26.5.1	Same as Model Profile **N/A**	
	Default [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Type: 16 virtual device coordinate # of values: 4 Format: APSATTR “default” “ 16 4 [coordinate 1] [coordinate 2] [coordinate 3] [coordinate 4]”; Example: APSATTR “default” “ 16 4 –315 –2886 16384 8761”; **Note:** This element is to be ignored by application software for GeoSym4.	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	**Element**	**Specifications – PPF**	**Specifications - Model Profile**
	T.26.6	Same as Model Profile **N/A**	
	Picture Properties [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Type: 14 string # of values: 1 Format: BEGAPS "[cgm name specified in BEGMF]" "PictureProperties" STLIST; Example: BEGAPS "0613" "PictureProperties" STLIST; **Note:** This element is to be ignored by application software for GeoSym4.	
	T.26.6.1	Same as Model Profile **N/A**	
	Type [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Type: 14 string # of values: 1 Format: APSATTR "Type" ' 14 1 "Overlay"'; **Note:** This element is to be ignored by application software for GeoSym4.	
	T.26.6.2	Same as Model Profile **N/A**	

	Creator [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: User id of person creating the cgm Type: 14 string # of values: 1 Format: APSATTR “Creator” ‘ 14 1 “tcbahm”’; **Note:** This element is to be ignored by application software for GeoSym4.	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	**Element**	**Specifications – PPF**	**Specifications - Model Profile**
	T.26.6.3	Same as Model Profile **N/A**	[redacted]
	Date [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Date the cgm was created Type: 14 string # of values: 1 Format: APSATTR "Type" ' 14 1 "[date: mm/dd/yy]"'; Example: APSATTR "Type" ' 14 1 "2/5/99"'; **Note:** This element is to be ignored by application software for GeoSym4.	
	T.26.6.4	Same as Model Profile **N/A**	[redacted]
	Description [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Description of the cgm; this was not populated for GeoSym4 Type: 14 string # of values: 1 Format: APSATTR "Description" ' 14 1 "[description]"'; Example: APSATTR "Description" ' 14 1 "Unknown"'; **Note:** This element is to be ignored by application software for GeoSym4.	

Table 26 - GeoSym4 Specific Application Structure Attributes (continued)

Remarks	Element	Specifications – PPF	Specifications - Model Profile
	T.26.6.5	Same as Model Profile **N/A**	[redacted]
	Color [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Type: 14 string # of values: 1 Format: APSATTR "Color" ' 14 1 "Native"'; **Note:** This element is to be ignored by application software for GeoSym4.	
	T.26.6.6	Same as Model Profile **N/A**	[redacted]
	Visibility [v4] References:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Description: Type: 14 string # of values: 1 Format: APSATTR "Visibility" ' 14 1 "Visibile"'; **Note:** This element is to be ignored by application software for GeoSym4.	

The following table comes from ISO/IEC 8632-3, Second edition 1992-10-01, AMENDMENT 1 1994-12-16

Part 3:

Binary encoding

AMENDMENT 1: Rules for profiles

Table 12 - Delimiter elements

Remarks	**Element**	**Specifications - PPF**	**Specifications - Model Profile**
	T.12.1	Same as Model Profile **YES**	
	no-op [v1] References: 7.2	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? *None.* Other: *None.*

Table 13 - Metafile descriptor elements

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.13.1	Same as Model Profile **NO**	
	INTEGER PRECISION [v1] References: 7.3	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? Yes, 16 bit only, see Part 1, Table entry T.16.4. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? *8, 16, or 32.* Other: *None.*
Required by VPF	T.13.2	Same as Model Profile **YES**	
	REAL PRECISION [v1] Reference: 7.3	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? See Part 1, Table entry T.16.5. Other:	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *Any restrictions on the parameter value? (1, 16, 16) or (0, 9, 23).* Other: *None.*
VPF change	T.13.3	Same as Model Profile **NO**	
	INDEX PRECISION [v1] References: 7.3	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? Yes, 16 bit only, see Part 1, Table entry T.16.6. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? 8, 16, or 32 Other: *None.*

Table 13 - Metafile descriptor elements (continued)

Remarks	Element	Specifications - PPF	Specifications - Model Profile
	T.13.4	Same as Model Profile **NO**	
	COLOUR PRECISION [v1] References: 7.3	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? Yes, 8 bit only, see Part 1, Table entry T.16.7. Other: ***Since this profile only specifies a single value or option, this element although permitted, never needs to appear in a compliant metafile. See Clause 6.1.***	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? *8 or 16.* Other: *None.*
	T.13.5	Same as Model Profile **NO**	
	COLOUR INDEX PRECISION [v1] Reference: 7.3	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? Yes, 8 bit only, see Part 1, Table entry T.16.8. Other: ***None.***	Element is: Required **NO** Permitted **YES** Prohibited **NO** Any restrictions on the parameter value? *8 or 16.* Other: *None.*
	T.13.6	Same as Model Profile **NO**	
	NAME PRECISION [v2] References: 7.3	Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other:	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? *16 or 32.* Other: *None.*

Table 14 - Control elements

Remarks	**Functionality**	**Specifications - PPF**	**Specifications - Model Profile**
	T.14.1	Same as Model Profile **NO**	
	VDC INTEGER PRECISION [V1] References 7.5	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? Yes, 16 bit only. Other:	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? 16 or 32. Other: *None.*
	T.14.2	Same as Model Profile **NO**	
	VDC REAL PRECISION [V1] References 7.5	Element is: Required **NO** Permitted **NO** Prohibited **YES** Any restrictions on the parameter value? Other: ***None***.	Element is: Required **NO** Permitted **YES** Any restrictions on the parameter value? *(1, 16, 16) or (0, 9, 16).* Other: *None.*